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FIFTY YEARS AGO : THE SCOTTISH NATIONAL ANTARCTIC EXPEDITION

By R. N. Rudmose Brown

Fifty years ago—on Sunday, November 2nd, 1902—Bruce's ship, the *Scotia*, flying the burgee of the Royal Northern Yacht Club, left Troon for the Antarctic. The *Scotia* was the old Norwegian whaling ship *Hekla*, remodelled by the Ailsa Shipbuilding Company according to the designs of Mr G. L. Watson. She was accompanied as far as Kingstown, her first port of call, by Captain Carr, the Prince of Monaco's representative, and convoyed by the yachts *Triton* and *Gleniffer* of Mr James Coats.

Now only three remain of that little band of us, sailors and scientists, who set out on that venture : Dr J. H. Harvey Pirie, long resident in Johannesburg ; W. Cuthbertson, the artist ; and R. N. Rudmose Brown, one of the naturalists. It was late in the season, because Bruce had been long delayed in collecting the modest sum that he required. As values went in those days, the *Scotia* expedition was the cheapest that had sailed, but by no means the poorest in equipment. Although her total cost was some £36,000, she carried a greater range of oceanographical apparatus than any other Antarctic ship. The expedition was one of the last of the old-time efforts with a wooden ship, with auxiliary steam, no radio, no mechanical transport, and no sonic sounding. And there was no provision for a relief ship should the *Scotia* come to grief : " We'll have to get out ourselves or stay there for good."

From Kingstown we hurried south, delaying only in calls for coal and a few hours' visit to St Paul's Rocks. But on this long journey we learnt how to handle our equipment, and, most important, learnt one another's weaknesses. At Port Stanley, Falkland Islands, we took our last look at civilisation, and met the Cape Horn seas in the last days of January 1903.

Bruce aimed at the exploration of the Weddell Sea, then unknown except in its north western corner and in the east, by a single, doubtful

sounding by Ross. Bruce was inspired by Sir John Murray to devote his chief attention to oceanography. The attainment of the Pole had no place in his programme : " It is intended to reach as far south as is compatible with the best results to science." He refused to sacrifice time and money to sensational attempts. Oceanography, meteorology, and biology were to form the basis of the *Scotia*'s work in the totally unknown regions between those chosen by the Germans in the *Gauss* to the east and the Swedes in the *Antarctic* to the west.

After a call at Saddle Island, in the South Orkneys, Bruce tried to enter the Weddell Sea, but was thwarted by heavy pack-ice. He made the discovery of the heavy pack that is incessantly driven north on the west of the Weddell Sea. He was forced to go east along the parallel of 60° S, which led to a line of soundings that helped to establish the southern arm of the Scotia Ridge, enclosing on the south the Scotia Sea. That name is now applied to the eastern waters of Drake Strait, between the Burdwood Bank, the Shag Rocks, South Georgia, on the north, the South Sandwich Islands on the east, and the South Orkneys and South Shetlands on the south. The ridge is almost certainly a line of folding.

At length the *Scotia* was able to turn southward, roughly between the courses of Weddell and Ross, sounding as she went. Again the pack of that dangerous sea caught her, in lat. 70° 25′ S, long. 17° 12′ W, but the next day the *Scotia*, fortunately, was freed and reached fairly open water. A retreat was inevitable, if possible, owing to the lateness of the date, and Bruce chose the untraversed seas towards the South Orkneys. After much searching, a winter harbour was found there in Scotia Bay. Laurie Island was surveyed under difficult conditions, for little reliance could be placed on the stability of the pack around the island, and that was the only road for the surveyors. They had to snatch their chances. The land is mountainous and offered no route. Extensive zoological collections were also made. Bruce built a meteorological station, which for its first summer was manned by *Scotia* staff and in 1904 was handed over to the Argentine government, which, with annual relief, has maintained it ever since.

After eight months in winter quarters, further explorations in the Scotia Sea, and a refit in Buenos Aires, the *Scotia* again traversed the Weddell Sea, on a diagonal track from the South Orkneys to her landfall in Coats Land, a totally unexpected discovery of ice-covered continental land rising in the interior to mountainous heights. It was sighted in lat. 72° 24′ S, long. 17° 30′ W, at a distance of eleven miles, and was traced, but was unapproachable, for 150 miles. This was the most sensational of Bruce's discoveries and perhaps the most striking discovery made by any expedition of those times. It added about half a million square miles to the probable area of the Antarctic continent. The discovery of Coats Land revealed a relatively narrow southern end to the Weddell Sea. As a result, it was not surprising that the *Scotia* was beset in lat. 74° S. There she lay a week, with every prospect of spending the winter drifting in the pack if not eventually being crushed. But after several days, the slackening of the pressure and Captain Robertson's skill as an ice navigator took the ship to the edge

of the pack and open waters. While beset, Bruce took soundings whenever possible and assiduously used the collecting nets.

Every ship that has penetrated far into the Weddell Sea, except Weddell's *Jane*, has been beset ; several have been crushed, like the *Antarctic* and *Endurance*. The circulatory drift in the sea and heavy pressure in the west led Bruce to characterise that sea as the most dangerous in the Antarctic.

The next important discovery was Bruce's correction of the Ross ' deep ' (4000 fathoms, no bottom, to 2660 fathoms) in lat. 68° 32′ S, long. 12° 49′ W. Sir Joseph Hooker, who was with Ross when the sounding was made, told Bruce that he always doubted its accuracy.

Bruce then contemplated the investigation of the South Sandwich Group, but the *Scotia* was too far east and had too little coal; also the winter was near. In heavy seas she stood northward, roughly on the tenth meridian west, to the unexplored Gough Island. Soundings revealed the Scotia Rise, a thousand-mile southward continuation of the mid-Atlantic ridge. These soundings were, in Bruce's estimation, the most important of all his discoveries ; their continuation was his chief ambition. Early in May 1904 the *Scotia* arrived at Cape Town, and thence, with calls at several Atlantic islands, she returned to the Clyde in July, after her cruise of 33,000 miles.

It had been a wholly successful expedition : no other expedition had brought back from the Antarctic a richer harvest of collections and observations. The expedition made fundamental changes in the map of the Antarctic, and showed that the western coast of the Weddell Sea would have to be charted from the land, since it was generally unapproachable from the sea. This contention of Bruce was fully confirmed in later years.

Bruce made another attempt to organise an expedition to the Weddell Sea. In 1908 he published his plans, which were modified and re-published in 1910. They were most ambitious, but he had the experience and resolution to carry them out if only he could raise the funds. Briefly, his plan was to survey the South Atlantic between lat. 40° and 50° S, from Buenos Aires to Cape Town, then to set a course to Coats Land, where he would land a party of ten or twelve men whose task would be to cross the continent via the Beardmore Glacier. There they would meet a party, landed during the same summer at McMurdo Sound in Victoria Land. All would eventually re-embark at McMurdo Sound and sail for New Zealand.

In 1912, Shackleton published a very similar plan for crossing Antarctica. The two explorers, always firm friends, agreed that each should try to raise the necessary funds, and whoever succeeded should make the attempt. Bruce thought he could do it on £50,000. Shackleton raised enough money to equip his expedition, and lost his ship in the Weddell Sea. War put an end to Bruce's endeavours in Antarctic exploration, and he turned to his earlier interest in the Arctic, particularly Prince Charles Foreland and central Spitsbergen.

Many of the *Scotia* results were published, but Bruce sought long and in vain for adequate government help, which English Antarctic expeditions lavishly received.

Scientific Results of the S.Y. *Scotia*. 1907-1915.

First Antarctic Voyage of the *Scotia*. Reports by the Leader and Staff of the Scottish National Antarctic Expedition. *S.G.M.*, 1904, 20 : 57-66, 113-133. Second Antarctic Voyage of the *Scotia*. *S.G.M.*, 1905, 21 : 24-37.

Report on the Work of the Scottish National Antarctic Expedition. Edinburgh : Scottish Oceanographical Laboratory, 1904. British Association, at Cambridge.

The Voyage of the *Scotia*. By R. N. Rudmose Brown, J. H. Harvey Pirie, and R. C. Mossman. 1906.

A Naturalist at the Poles : The Life, Work and Voyages of Dr W. S. Bruce. By R. N. Rudmose Brown. 1923.

SEVENTEENTH INTERNATIONAL GEOGRAPHICAL CONGRESS

THE Seventeenth International Geographical Congress and the Eighth General Assembly of the International Geographical Union took place at Washington from 8th to 15th August 1952. Delegates were appointed from 45 countries, either by Governments or by organisations adhering to the Union, while representatives from seven international organisations and 222 national organisations—governmental, research or educational—were also present. In all, there were probably something like 1500 inscribed members, of whom well over 1000, about half of them from outside the United States, attended.

The Congress was officially welcomed by the City of Washington, the National Research Council of the National Academy of Sciences and by the Department of State.

In his presidential address, entitled " Land for 2·4 Billion Neighbours," Professor George B. Cressey, after a rapid sketch of the impressions gained on his travels during his period of office, compared the statistics of world land use and food supply compiled by various authorities and concluded that probably " major increase of food will come within existing farm areas." The ensuing symposium on world food supply included a characteristically stimulating contribution by Professor Schultz of the Department of Economics, University of Chicago. The subsequent remarks by Professor Dudley Stamp seemed to indicate not only a divergence in approach as between economists and geographers but that geography was making a bid to take the place abandoned by economics as " the dismal science." The other symposium arranged for the Congress was on problems of tropical Africa. While there was some criticism of lack of cohesion in the papers presented at symposia, it should no doubt be taken into consideration that the arrangement of a successful symposium, difficult enough at any time, presents particularly serious problems of organisation in an international congress.

The Congress met in twelve sections, as follows : geomorphology ; teaching ; climatology ; urban and rural settlement ; hydrography ; resources, agriculture and industry ; demography and cultural

geography ; cartography ; trade and transportation ; biogeography ; regional geography ; historical and political geography. In some of the sections devoted to social aspects of geography, a serious defect in Congress arrangements was the lack of connection, whether by region or topic, in the papers read. This, together with the difficulties of timing individual contributions and probably also, in some cases, linguistic difficulties, led to great mobility in the audience during the proceedings in some sections. A section that appeared more fortunate in the mutual relationship of its papers was geomorphology, in which the papers grouped themselves readily into coastal studies, glaciation, and erosion surfaces. In climatology there was a preponderance of contributions from the Far East, especially from Japan. In urban and rural settlement the former predominated.

Eight of the commissions, as well as the committee on arid zones, held meetings. About fifty suggestions for new commissions or for the continuance of existing commissions were received by the committee on commissions. Lack of funds prevented the Union from following up a number of promising lines in the organisation of research. It is probably true to say also that there has been a tendency for some of the older commissions to protract their operations disproportionately.

The Executive Committee nominated Professor L. Dudley Stamp (United Kingdom) as president of the Union in succession to Professor Cressey (United States), and Mr G. H. T. Kimble, Director of the American Geographical Society, for re-election as secretary of the Union. After an intensive campaign by the Brazilian delegation, which had already proffered an invitation at Lisbon, a large majority of heads of delegations voted for Rio de Janeiro as the seat of the next Congress, in 1955 or 1956.

The official Congress banquet was held in the Presidential Ballroom of the Hotel Statler. Foreign delegates were the guests of the United States National Committee. At the close of the banquet and after distinguished guests at the high table had been acclaimed, the Honourable Hans W:son Ahlmann delivered the third Isaiah Bowman Memorial Lecture under the auspices of the American Geographical Society. His subject was " Glacier Variations and Climatic Fluctuations." Other events included an official reception at the Hotel Statler by the Acting Secretary of State, the Honourable David K. Bruce, and Mrs Bruce, and a lawn party offered by the National Academy of Sciences. The British delegates were received by Her Britannic Majesty's Ambassador and Lady Franks.

During the Congress the foreign visitors greatly enjoyed a field trip from Washington across the Piedmont and the Blue Mountains to the Shenandoah Valley. Other local visits included the U.S. Map Service and the National Geographic Society's headquarters and the works where its *Magazine* is printed.

Before the Congress, two small groups participated, respectively, in the excursions to the industrial cities (Philadelphia, Chicago, Detroit, Pittsburgh and Buffalo) and New England. After the Congress two other excursions left, respectively, for the southeastern States and a transcontinental tour. C. J. R.

GEOGRAPHY AT THE BRITISH ASSOCIATION

THE 1952 meeting of the British Association in Belfast was on the whole a most successful one. Visitors were given a warm welcome and many interesting excursions, visits to works, and receptions were organised for their education and entertainment. Local membership was the highest on record apart from the Centenary London Meeting of 1931, and it included over 900 school boys and girls. Section E inevitably suffered from the absence of many academic geographers at the International Congress in Washington, but the Belfast geographers had not spared themselves in organising the excursions and a fine exhibition of students' work, and in looking after the visitors and making their sojourn in Queen's University an educative and pleasant one.

As fifty years have elapsed since the B.A. last met in Belfast, it was appropriate that many of the papers should be concerned with Ireland. The first morning was devoted to three contributions on Belfast and its region, which provided a background for the excursions. Professor Estyn Evans in an attractively phrased and delivered address gave a general survey of the physical and social environments of Belfast and its region. This was followed by a comprehensive account of the Land Use of E. Ulster by Mr D. A. Hill, who himself carried out a large part of the survey and analysis, and whose intimate knowledge of the country and bright personality were enjoyed by members on some of the excursions. The morning closed with a paper by Dr Emrys Jones on the Social Geography of Belfast. As well as giving an interesting and at times humorous exposition of the facts, he showed how the simple geometrical classifications put forth by certain American geographers are quite inappropriate to a city like Belfast with a long and complex history and a highly varied site.

Monday afternoon was devoted to a joint discussion with the Economics Section on the Location of Industry in Northern Ireland. This was opened by three papers, the first by Professor Smith, of the University of Liverpool, on " The Principles of the Location of Industry and their Application to Northern Ireland," the second by Mr N. Cuthbert on " Industrial Location in Northern Ireland *vis-à-vis* the rest of the United Kingdom," and the third by Mr B. J. Ahern on " Industrial Problems facing the Government of Northern Ireland." The discussion was rather inconclusive, but was specially interesting to a Scot on account of the similarities and divergences between the current economic problems of the two countries.

Friday morning (5th September) was also devoted to papers on Ireland and included an admirably delivered and most interesting paper by Mrs J. M. Graham, embodying the results of her researches into " Transhumance in Ireland." Mrs Graham's address was preceded by a paper by Mr V. B. Proudfoot, on " Erosion Surfaces in the Mourne Mountains," and was followed by a survey by Dr H. C. Brookfield of " The Influence of Economic Changes in the Port,

Industries and Transit Trades of Cork on the Morphology of the City in the Nineteenth Century," and by a paper on " Town and Region in Ulster : a study of urban fields with special reference to Ballymena," by Mr A. E. Smailes of University College, London, who is Chairman of the Geographical Association's Standing Committee for the promotion of the study of urban spheres of influence.

In his Presidential Address, Professor R. O. Buchanan gave an interesting and useful account of the conditions influencing different phases of settlement in the overseas Dominions and their effect on current problems.

Friday afternoon's papers were also devoted to more remote regions. Mr G. J. Butland gave an enlightening account of settlement and population changes in the S. Chilean Provinces of Magallanes and Aysen where he spent a number of years. Mr A. T. A. Learmonth brought Dr A. Geddes's work on " Variability and Population Change in India and Regional Variations therein " up to date by an analysis of changes during the most recent census interval ; while Mr E. V. Lane dealt with " Some Aspects of the Early Development of the British Rubber Industry," a paper also concerned with South America.

Other papers dealing with questions of urban spheres of influence and the classification of towns were " Local Transport and Rural-Urban Relationships in Western Europe," by Mr F. H. W. Green, and " Growth and Grading of Towns in South-West Wales," by Mr H. Carter. Historical geography was represented by a paper on " Field Patterns in Devon," by Mr A. H. Shorter ; and " An Early Nineteenth Century Muster List in Yorkshire," by Mr R. Lawton ; and geomorphology by Mr G. H. Dury on " A New Approach to the Problem of Underfit Rivers."

Papers on economic geography included " The Geographical Distribution of Productivity in the Scottish Coalfields," by Mr D. J. Sinclair ; " Certain Aspects of the Manx Agricultural Landscape," by Mr J. D. Birch ; and " Land Reform in Calabria with some General Observations on Agricultural Planning," by Mr H. Bowen-Jones. The last was of great topical interest, since the situation in Calabria in relation to low agricultural productivity and high population increase typifies in a small area of Europe the problem of larger regions in Asia.

Short excursions were made in and near Belfast itself under the leadership of Professor Evans, Dr Jones and Mr D. A. Hill, while long excursions visited Slieve Gullion and Armagh with Professor Evans, County Down and the Mountains of Mourne with Dr Jones, the coast, glens and plateau of Antrim with Messrs Hill and Stephens, and Strangford Lough with Mr Hill.

After the B.A. meeting, a number of members of the Institute of British Geographers took part in a most interesting, educative and enjoyable six-day excursion to Galway. They found Galway an excellent centre for geographical studies, and are greatly indebted to Dr A. Farrington, Secretary of the Royal Irish Academy, for his stimulating and genial leadership and to Dr D. K. Smee for making the arrangements.

C. P. S.

OLD MAPS AND RURAL CHANGE IN AYRSHIRE

By J. H. G. Lebon

The Stability of Rural Settlement since 1600

Scotland is fortunate in the extent and accuracy of its early surveys. As long ago as 1600, almost the whole country was surveyed by Timothy Pont. One hundred and fifty years later, General Roy's parties delineated the whole of the mainland. In the third quarter of the nineteenth century, the Ordnance Survey, beginning in the south, perambulated the entire country, completing its task in the 'eighties in the Outer Hebrides and Zetland. Thus, almost from the end of the Middle Ages, Scotland has been recurrently surveyed in great detail.

Timothy Pont's survey (1598-1605) was inspired by Christopher Saxton who, a generation earlier, had published his celebrated maps of English shires ; but was in no sense a slavish imitation.[1] Pont attempted to show more detail than his English paradigm, and succeeded. Whereas Saxton indicated only towns, principal villages and the greater country seats, Pont crowded his sheets with the names of farms and townships. His representation of scattered rural settlement is as comprehensive as the modern One Inch map. The stability of rural settlement in southern Ayrshire in itself affords proof of the accuracy of Pont's surveying, as well as of the continued existence of the majority of farms since the Middle Ages. If, for instance, the South Carrick sheet (*Carricta Meridionalis*) in Blaeu's great *Atlas* (1654) is compared with Ordnance Survey plans an exact correspondence, farm for farm, stream for stream, will be disclosed. Due allowance being made for the cruder execution of the earlier map, and for variations in spelling, the truth is that many valleys, occupied to-day by a single or double string of farmsteads, are represented identically on these two surveys separated in time by two and a half centuries. If the original surveyor, or, it may be added, the Dutch engraver, had worked carelessly, such exact correspondence would not be observed. Farms would be displaced, interchanged or omitted. But such errors are extremely rare. Pont sometimes missed townships concealed in minor valleys ; and, in populous lowlands, he undoubtedly omitted many cottages, to avoid overcrowding his maps. The student must be alert to both of these shortcomings ; for the efficient use of Pont's maps demands that local omissions must be readily detected.

Though the pattern of settlement has remained unchanged, the number of farms has been reduced. The several editions of the Ordnance Survey omit many farms located both by Pont and the Military Survey, or indicate only uninhabited ruins. Thus, for the parish of New Cumnock (Fig. 1), it is clear that the distribution of steadings in 1600 continued without modification until 1760. Only

five farms appear on the Military Survey which are not located by Pont. Twenty-five farms appear only on the First Edition of the Ordnance Survey (1860), of which nine had vanished by 1908 (Third Edition). Most farms appearing only on Ordnance Survey maps are situated in the hills on either side of the Nith valley in the east of the parish. Pont and General Roy's surveyors did not completely delineate this area; here, as elsewhere in Scotland, they frequently

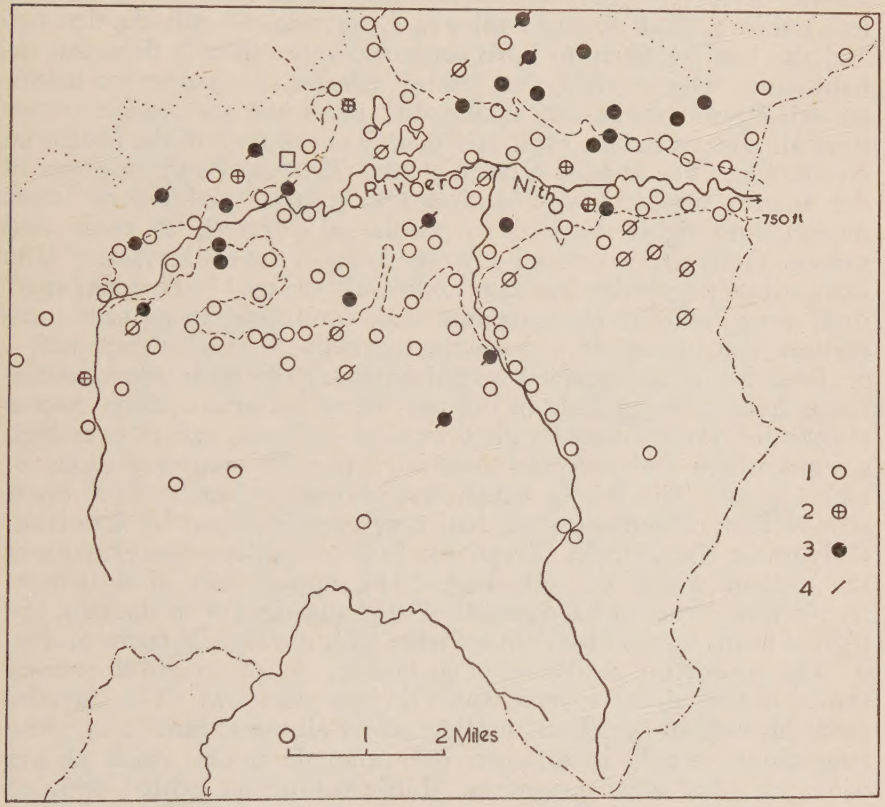

Fig. 1. The distribution of farm-steadings in the Parish of New Cumnock, Ayrshire, in 1600, 1760, and 1908. 1. Farmhouses shown by Timothy Pont. 2. Farmhouses first shown by the Military Survey. 3. Farmhouses first shown on the O.S. map, first edition, *c.* 1860. 4. Line denoting any of the above categories which were ruined or uninhabited in 1908.

kept to a main valley or a well-defined routeway. We may conclude that, apart from a limited thinning of farms since 1750, rural settlement has persisted unmodified since the close of the Middle Ages in New Cumnock parish. Most of the abandoned settlements stood above 750 feet on the moorlands; and before 1750, when cattle-rearing was dominant and a kind of transhumance was still practised, several were occupied (as shielings) only in summer; and are so indicated by Pont. Since the change to sheep-farming, only a few survive as upland farms or shepherds' cottages.

Pont's Delineation of the Contemporary Landscape

If Pont's sheets in the *Geographiae Blauianae*, depicting, for instance, Ayrshire and Renfrewshire, are examined, both dissimilarities and resemblances with the modern landscape become apparent (Fig. 2). The few towns, in 1600, were inconspicuous in the setting of dispersed, yet fairly dense, rural settlement. Among the few ancient towns shown—Ayr, Irvine, Kilmarnock, Kilwinning and Minniboll (Maybole) in Ayrshire ; Renfrew and Paisley in Renfrewshire—only the first two and the last are likely to have contained more than a thousand inhabitants. The weaving and mining villages, the numerous manufacturing towns, large and small, most ports and the seaside resorts have all appeared since 1750, and mainly as products of the Industrial Revolution. For at least a century after Timothy Pont, burgesses of the ancient market towns continued to exercise and enforce their monopolistic rights, secured by mediaeval charters, to trade and practise crafts within defined adjacent areas of the countryside.[2] The extra-urban population was thus exclusively engaged in farming, apart from some domestic cloth-making, and, continuing to practise pastoralism with limited crop production, remained strongly dispersed.

Both the areas occupied and the density of the scattered settlements have changed little in the past three centuries. Each map is closely and evenly dotted with townships or farms, except over high ground where the seventeenth-century pictorial representations of hills appear. The forests, which had covered so much of the lower ground four centuries earlier, had now been replaced by farmland. Only in the Nith, Upper Girvan and Stinchar valleys were remains of the ancient woods still standing. The upper limit of settlement (*c.* 700 feet) seems to have remained unchanged. For in the hills, the highest farms marked by Pont coincide with the highest farms to-day.

The omission of roads and of enclosures, except around the strong towers of the lairds, is significant. Bridges were few. The traveller made his way on horseback, fording nearly all the streams, and going long distances only in summer, over unmade tracks which in wet winter weather were quagmires. Little distinction existed between main and other roads ; the farmer going to a neighbour, equally with the King's messenger from Edinburgh to a county town, traversed what was, generally, unimproved open pasture, guided by the hoof-prints of his precursors, and doubtless deviating in places to avoid deep-trodden mud. A farm or township consisted of unenclosed land, partly pasture ; but with patches of cropped (croft or infield) land adjacent to the steadings. Even farm boundaries were unfenced, and were generally defined by natural features, especially streams. Cattle and sheep were always tended when grazing, and thus kept from crops or a neighbour's pasture. In this open, deforested landscape, the farmhouses—often a single, low building shared by men and animals—standing alone or in small hamlets, were the most conspicuous objects of the countryside, and as such, were carefully denoted by Pont. The absence of conventional signs for roads, fences and plantations—such familiar elements of the modern map—is thus to be explained not as

Fig. 2. Part of Kyle, Ayrshire, by Timothy Pont, from the Great Atlas, 1654, Vol. 6, by W. and J. Blaeu, 1654.

Fig. 3. The district south of Kilmarnock and Galston, from the Military Survey of Scotland, 1755-1767.

an arbitrary omission, but as a sign of their general non-existence at this period.

The strong houses of the nobles, equally with the farm-steadings, must have stood out more prominently from the naked seventeenth-century landscape than from the modern countryside with its hedge-rows, dykes and shelter belts. In Kyle and Cuninghame, almost the only woods surviving the five centuries of deforestation stood around the castles or strong towers, and afforded shelter for deer. To prevent these animals escaping, and to stop trespass, these private preserves, a feature of nearly every nobleman's residence, were fenced, as is clearly shown on the reproduced portion of one of Pont's maps (Fig. 2).

Correctly interpreted, Timothy Pont's maps, though in some ways crude and uncouth to the modern eye, are remarkably faithful representations of Scotland three and a half centuries ago. Portraying all that was essential in the landscape of his day, his maps provide a most reliable basis for the detailed analysis of rural change since his epoch.

The symbols he used to denote farms, i.e. a small circle or a miniature house, must not be misinterpreted. It is easy to liken these, by a false analogy, to the isolated farmhouses of to-day which so liberally bestrew Ordnance Survey maps. The settlements thus inserted by Pont were really townships or hamlets. Nearly all rentals dating from the seventeenth and early eighteenth centuries disclose that it was customary, before the Agrarian Revolution, to lease farms, i.e. townships, to from 2 to 8 or more tenants, commonly by quarters or halves. Within each fraction of the township, two or more tenants jointly cultivated the croft-land or infield, using pasture in common. The farmhouse symbol on one of Pont's maps therefore usually denotes a hamlet of 2 to 8 steadings—dwelling-houses with byres and yards—loosely or tightly clustered in the midst of a township. This type of settlement was frequently depicted by the Military Survey, and in not a few localities has survived in the Lowlands, to be shown clearly on Six Inch plans,despite the abolition of joint tenancy and the enclosure of land.[3]

Rural Change in Kyle between 1600 and 1750

General Roy's map is equally a document of supreme importance for the study of Scotland, for it depicts the countryside on the eve of the momentous changes wrought by the Agrarian Revolution. On a scale of approximately two miles to one inch, its detail is superior to that of the Pont maps ; so also is its accuracy of outline. Showing rural settlements with great fidelity, this Survey facilitates and justifies analysis of the changes both before and since. A land utilisation map of more than rudimentary character, and superior in this respect even to the Ordnance Survey, it enables the eighteenth-century mode of using land to be compared with that of to-day.[4] (See Fig. 3.)

It is fascinating indeed to scrutinise the long MS. rolls in the British Museum,[5] comparing area for area, with the First Edition of the Ordnance Survey map on the Six Inch scale, produced just a century

later, as the Agrarian Revolution was ending. In no other way can be visualised so readily the extent to which a countryside, largely bare, open and empty—a *tabula rasa* save for the tiny steadings—became overlaid with the plantations, fences, dykes, roads, railways, the greater steadings and the mansions of to-day.

For the area south east of Kilmarnock, Pont's representation of physical features may be verified by comparison with later general surveys (Figs. 2 and 3). The Cessnock Water is correctly joined to the Water of Irvine opposite Milton ; its significant bend at Hatting (Haining) is slightly exaggerated ; the next bend, just above Aird, is less adequately drawn. The Burn Anne (Ann fl.) is shown flowing slightly north of its true direction (west-north-west) ; but Galston Church is indicated correctly, on the left bank, though a little too far from the confluence, and Bar Castle (in the shadow of which this burgh was built) on the right. Upstream, Molmontend farm (successor to " Momonts ") is located accurately on the right-hand slope of the valley, near the base of Molmont hill (" Momonthill ") ; and opposite, as to-day, is West Threepwood (Threipwood). Barwood was then evidently twice the size to which it had been reduced by 1750, and exceeded in area the policies which are shown surrounding the strong houses of Tour (now Cessnock Castle), Sornbeg, Sessnock and Haining.[6] Between these noblemen's seats are numerous farms, all of which can be identified on later maps, and which include nearly all the larger farms in the area to-day.

A still clearer picture of the pre-enclosure landscape is given by the Military Survey, in Fig. 3. The tracks followed by travellers between towns were now sufficiently defined to be included in the detail ; although only at Galston, over the Burn Anne, did a bridge stand. This was also available in Pont's day (Fig. 2). Both the Irvine–Edinburgh road, and the Glasgow–Kilmarnock–Mauchline–Dumfries road crossed the Cessnock water by fords ; and used the Hurl-ford of the Irvine Water in common. One of the rare *lacunae* in this map occurs just west of Galston (Gallstown) : Holmes, Goatfoot, Barward, Gauchalland and Clinchyard having been omitted. The larger scale of this survey permits the townships—with which the remainder of this map is so abundantly bestrewn—to be shown in greater detail than was practicable for Pont, who employed only a conventional sign. The tall trees, embowering and sheltering the farm buildings, observable as a general rule to-day, were common also then. Along the Kilmarnock–Mauchline road, Saarston, Overloans and Netherloan were thus protected from Atlantic gales. All steadings, whether tree-protected or otherwise, consisted of two or three separate buildings—farmhouse, cottages, byres and barns—standing in small enclosures or kailyards. In addition, at least three steading *clusters* are indicated : Barleith, Overlands and Netherloan. The first two comprised *two* steadings each, with tree-ring and kailyard ; the last-named, four.[7] Between the steadings the land is mainly cross-hatched, denoting that it was arable. This included (without differentiation on the map) both infield near the steadings, cultivated continuously, and the more extensive outfield, a small portion of which was cultivated each year, the remainder serving

as pasture. Already in 1600 nearly denuded of woodland, by 1750 still further clearance had taken place. Bar Wood had been reduced to less than half its size ; although the smaller deer-parks at Cessnock (Cessnock Wood) and Haining (Haining Wood) survived. At Sornbeg the park had been cleared, to be replaced by enclosures—for meadow, pasture or cultivation—and an ornamental garden. The Tour deer-park, now Cessnock Castle policies, was assuming more modern form, for gardens, avenues and ornamental planting are all shown.[6] On the north bank of the Irvine Water, the Loudoun Park was taking its present shape as the policies were doubled in size by a great westward extension from the old deer-park. In addition to these changes around lairds' seats, the beginnings of farm enclosure have been recorded. Just west of Galston, at Sessnockyards and by Hurlford, hedgerows interlace across land which, not long previously, had been open outfield.

Thus the rural change between 1600 and 1760 was not inappreciable. But it was local and partial compared with the thorough-going transformation to be wrought by the Agrarian Revolution. During the ensuing century, the carpet of the countryside was unpicked and rewoven in a new design.

[1] A history of Pont's survey, with critical notes on the surviving MSS., is contained in two articles by Sir C. G. Cash, *S.G.M.*, Vol. 17 (1901), p. 399 and Vol. 23 (1907), p. 574. " The papers of Pont were, after his death, put under the charge of Robert Gordon of Straloch, an eminent geographer and antiquary . . . who was directed by Charles I to aid the Blaeus, in Amsterdam . . . in their great work of an Atlas of the World." (J. S. Dobie, Cunninghame Topographized, 1876, p. xviii.)

[2] *Vide* I. F. Grant. Social and Economic History of Scotland before 1603, 1930, pp. 368-370.

[3] *Cf.* The Process of Enclosure in the Western Lowlands, by the present author, *S.G.M.*, 1946, 62 (*3*) : 100-110.

[4] *Vide* the essay by the present author in London Essays in Geography (ed. L. D. Stamp), 1951.

[5] British Museum, Maps, 115, h.

[6] To avoid confusion, it should perhaps be mentioned that three farms or estates bear the name Cessnock. (1) Little Cessnock Farm (Sessnock on the Military Survey), to the west of the Cessnock Water–Irvine Water confluence ; now vanished : (2) (Old) Cessnock Castle, shown by Pont on the north bank of the Cessnock Water opposite Karnell (Carnell), and as Sessnock by the Military Survey, and also no longer standing : (3) the house and park of Tour on Pont's map (close to Sornbeg), which had become the present-day Cessnock Castle by 1760, the old house becoming the Tower Byres. Thus the present Cessnock Castle is some distance from the older lands and seat which once bore this name.

[7] Other aspects of rural change in this area are discussed in " The Face of the Countryside in Central Ayrshire . . . ", by the present author, *S.G.M.*, 1946, 62 (*1*) : 7-15. Part of an eighteenth-century estate plan, depicting the countryside between the Burn Anne and the Cessnock Water, is reproduced therein.

THE ABERDEEN UNIVERSITY EXPEDITION TO CYRENAICA, 1951. PART II.

THE OASIS OF JALO

By KENNETH WALTON

FROM the fractured Eocene limestone plateaux of the Jebel el Akhdar in the north of Cyrenaica, the surface drops gradually southwards towards the shallow depressions in which lie the main oases of the northern Libyan desert. Of these oases, Jarabub is the best known and has been most intensively studied. There are, however, two others to the west, Aujila and Jalo, which are of equal importance from the geographical point of view. Of the two, Jalo is now the most important and has the largest population, though Aujila seems to have been most frequently marked on early atlas maps. They have many similarities in morphology and ecology, in dependence on agriculture and lack of rural handicrafts, and in their position on the important caravan route between the southern oases of Kufra and the Gulf of Sirte. Jalo and Aujila were visited in October 1951, and this paper is based on surveys made and material collected at that time.

The approach to the oases is normally made from Agedabia at the head of the Gulf of Sirte along a motorable track which crosses the various morphological zones, from the sand dunes which fringe the coast to the true desert of the interior. The low coastal plain, which extends for about fifty miles south east of Agedabia, is almost completely flat and seldom broken by any marked relief feature. The ground is covered with numerous small angular rock fragments, each with its coating of desert varnish, while between the outcrops of limestone pavement with small-scale solution features, the reddish residual soil patches are dotted with small dome-shaped bushes spaced at centres about five feet apart. There is comparatively little blown sand in this zone compared with further south, but the bushes have occasionally acted as small-dune formers and trapped the sand around the roots and stems. Apart from giving poor grazing for sheep and goats, they have little value for the nomadic tribes of the area, except perhaps as fuel.

Interspersed with this semi-continuous vegetation cover are shallow patches covered with small, loose rock fragments where plants are completely absent. These appear to be wet-weather channels, which carry off the water collecting on the bare rock surfaces during the winter rains. At this season the ground becomes sufficiently soft for vehicles to cause deep ruts and, in consequence, a new track is frequently brought into use by the side of the old. The effect is to give a series of almost parallel tracks. These, however, all converge towards the major relief feature in the coastal zone—the Wadi el Fareg, into which the track descends steeply at the only practicable crossing point. To east and west the sides of the wadi are precipitous, overlooking the dry sandy bed where the only sign of water at the end of the dry season is in the well sunk close to the track.

Beyond the wadi there is a gradual transition towards the next zone. Patches of sand become more frequent, the drifts are more widespread, and the vegetation becomes smaller and more discontinuous. About fifty miles from Agedabia, the track begins to skirt the western edge of a depression. As it drops towards the bottom, the vegetation becomes almost completely absent and the smooth level sand surface is scattered with fragments of gypsum. The monotony, however, is broken at the northern edge by four small conical residuals, each capped with a honeycomb-weathered sandstone layer which is crumbly to the touch. These hills, approximately the same height as the lip of the depression, mark the extremity of a playa lake, which the track skirts through dune-forming clumps of tamarisk.

The southern edge of the playa marks the transition into the sand desert proper, and a rough dividing line can be drawn at the group of low red sandstone buttes which lie a few miles beyond the well and fort of Garet es Sahabi. To the south extends the Libyan sand sea with, in this area, a surface consisting of almost imperceptible undulations. These form a system of very low ridges surrounding shallow hollows, and the sand surface varies according to its situation. In the depressions it is soft and difficult for vehicles to negotiate without a system of four-wheel drive and sand channels. On the ridges between there is very little soft sand, the surface consisting of tiny well-rounded fragments of gravel which cover the softer, finer sand beneath. This has an important bearing on the motor routes across the desert. Arab lorries, which frequently make the journey from Agedabia to Jalo and Kufra, follow the tops of the ridges in great sweeping curves where the gravel cover gives firm going. Since no two vehicles follow in the same track, so as to take advantage of the undisturbed gravel layer, and the curves frequently follow the arc of a semicircle, the driver not accustomed to the route can either follow the curves made by the Arab lorries in the hope that they lead to his particular destination, or he can travel on a compass-bearing, which involves crossing ridges and depressions and the possibility of overheating the engine or failure of the transmission in the latter. In terms of time for the journey, it is best to keep to the ridges, where speeds of over thirty miles an hour may be maintained without damage to the vehicles. There are no barkhans or other dune formations to be seen in the passage from the playa to the oasis of Aujila.

The oases of Aujila and Jalo lie in the centre of shallow depressions elongated in a north-south direction. Whether these depressions are structural or deflation hollows it was impossible to determine, but certain features favour the concept of either the erosion of a less resistant synclinal formation, or a tectonic origin. There is, for instance, a very steep slope on the south east of the Aujila depression, which is almost in the form of a scarp. The north to south alignment of the two depressions, separated by about thirty miles, would also appear to be evidence in support of this thesis, since there is a considerable divergence from the direction of the most frequent north-westerly winds and the occasional south-easterly ' khamsin.' [1]

The Floor of the Oasis of Jalo

The floor of the oasis depression of Jalo is approximately one hundred and seventy feet above sea-level,[2] and about fifty to seventy feet below the surface of the sand desert. The relief within the depression seems to depend on underlying structural forms and the current disposition of moving sand. Since, however, sand masks the

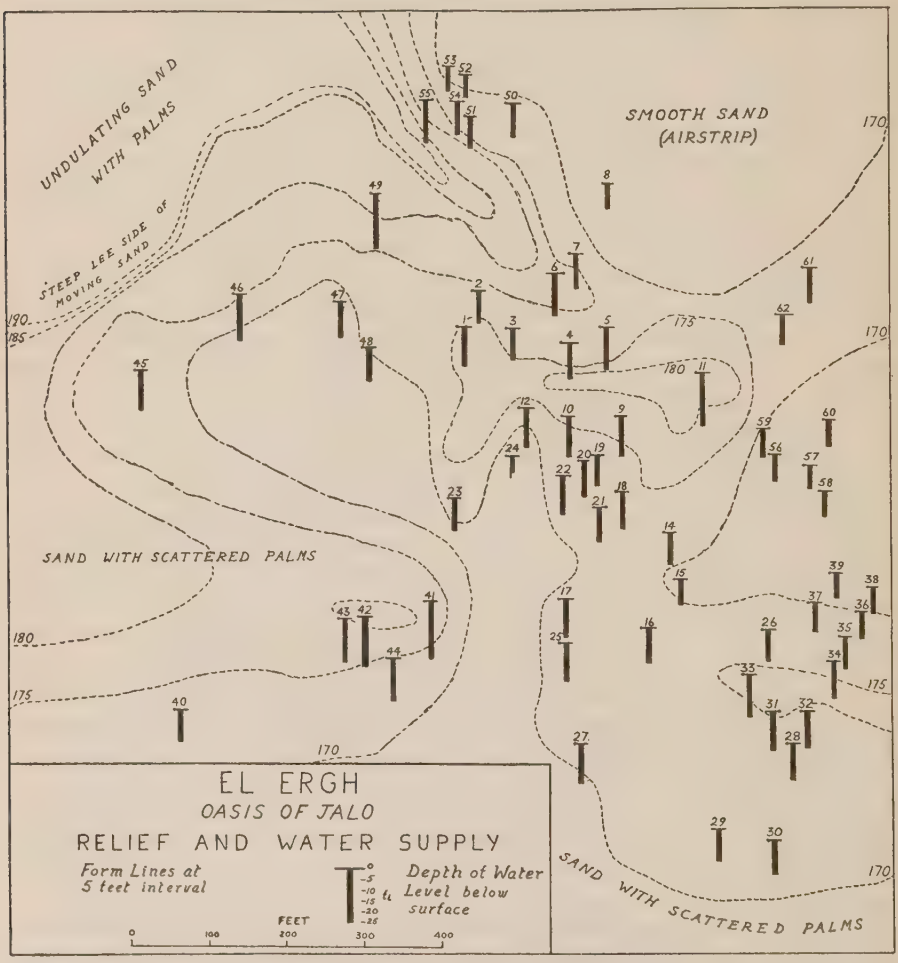

Fig. 1. El Ergh, Oasis of Jalo. Relief and water supply.

whole area it is often impossible to separate the two. This sand surface differs considerably from that of the surrounding desert. Frequent north-westerly winds have moulded the sand into small dune formations, which have collected on the side of the limestone ridges and in the vicinity of palm trees, tamarisks and palm-frond fences. The steep lee side of one such sand formation is a very prominent landform in the north west of El Ergh, the main settlement of Jalo oasis (Fig. 1). The steep advancing slope of about thirty degrees has already covered some

palm trees and houses and is encroaching on others. Some of the ruined walls may be seen in the map of the settlement (Fig. 2).

This movement of sand in the oasis seems to be the result of two factors. In contrast to the desert proper, the sand has no protective gravel cover, and, in consequence, it is soft, difficult to walk on and almost impassable for vehicles. In both the oasis depressions, causeways or roads of palm logs have been constructed for the use of the

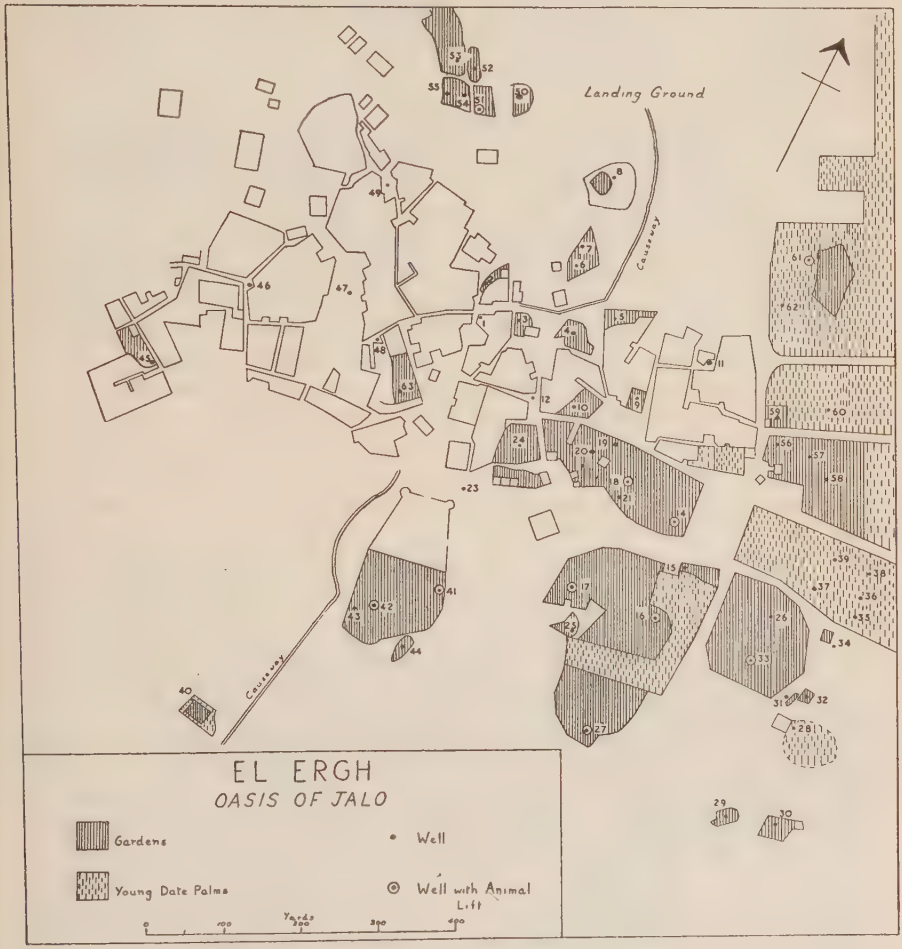

Fig. 2. Plan of El Ergh. (Compare with Fig. 1.)

desert lorries. Those of Jalo lead into the centre of the settlement of Ergh from Aujila and Kufra (Fig. 2). The second factor in the movement of sand is the depression itself, which, whatever its origin, now acts as a funnel and concentrates the force of the winds along the hollow, driving the soft unprotected sand. Only in a few places does the underlying rock formation reach the surface. In the area covered by Fig 1, limestone *in situ* was discovered only in the north of the airfield.

As a result of the structural ridges and the moving sand, the floor of the oasis is very uneven. In the immediate vicinity of El Ergh a series of ridges, which have a predominantly east to west trend, gives a diversified small-scale relief, which was probably a factor in the early location of the settlement, since it provides some measure of protection from the winds and a defensive site. To the north east, however, lies a considerable expanse of smooth sand bounded by the ridges on the south, which rise to a height of about thirty feet above the general level. This flat was used as an airfield by the Italians and still bears the wreckage of aircraft and artillery.

Water Supply

Within the oasis depression, water supply is of prime importance : it is the reason for the oasis, the means of existence for the community and a vital factor in desert travel and communications. As on it depend all forms of life, great attention was paid to its occurrence and composition. Reference to Fig. 1 shows the distribution of wells in El Ergh, or at least as many as could be plotted and measured without causing offence by entering private property. There are reputed to be one hundred and fifty wells, of which over sixty were examined. Since the water is used so much for irrigation, and a single reading might have given a false value as a result of temporary exhaustion, each well was visited twice on different days and at different times of the day, the reading to the water-level giving almost identical results. These results indicate that the water-table at El Ergh stands at about one hundred and fifty-six feet above sea-level but with variations within the area. In general, it was discovered that the level of the water in the wells is at its maximum height in the south east, which, together with the low relief of this portion, gives the minimum ' lifts.' This fact, together with the comparative freedom from encroaching sand, probably accounts for the location of the gardens mainly to the east and south east of the settlement.

Samples of water were also obtained for later analysis, and the following table gives the result : [3]

Total soluble salts : 388 parts per 100,000 including :

Calcium	.	33·6	parts per	100,000
Magnesium	.	13·2	,, ,,	,,
Potassium	.	2·3	,, ,,	,,
Sodium .	.	83·4	,, ,,	,,
Chloride	.	156·0	,, ,,	,,
Sulphate	.	90·7	,, ,,	,,

Probable composition of the salts :

Sodium chloride	.	212·1
Magnesium sulphate	.	66·0
Calcium carbonate	.	9·25
Calcium sulphate .	.	54·4
Calcium chloride .	.	38·5
Potassium chloride	.	4·5
pH . . .	.	7·4
Temporary hardness	.	9·25 (Low)
Permanent hardness	.	130·2 (High)

Bedouin encampment on the fringe of the settlement at El Ergh.

General view of the settlement of El Ergh looking west from the administrative building ; part of school building on the left.

Irrigation channels and beds of millet in a garden at El Ergh. Young date-palm in a convenient position for irrigation.

Irrigation of onions at Jalo.

This concentration of sodium chloride in the waters of the oasis is typical of Jalo, and tends to cause chronic disorders of the alimentary system to those not habituated. The water of Aujila oasis, though no sample was obtained for analysis, has a better reputation, but is still brackish and unpalatable. The best drinking water has to be imported from the sweet wells of Botafal, about twenty-five miles away along the Kugra track. Although this water was used by the various occupiers of the oasis during the desert campaigns, the cost of transport is too high for the peasants, who have to be content with water drawn from the local wells. Even so, they prefer to drink water brought from wells about three-quarters of a mile away, since those in the settlement itself are often polluted by animals.

The wells are of two types, though the method of excavation is similar. The majority are simple openings about two feet across, but in some of the gardens structures are built and ramps excavated for animal ' lifts.' These are of a type common in the Middle East and South India. A hole is dug in the sand larger in diameter than that of the finished well and lined with whole or split palm logs to prevent collapse of the sides. The palm log revetment does not usually extend to the bottom of the well, since the sand about eight or ten feet below the surface is cemented together by the chemically charged percolating waters. The upper limit of cementation probably represents the level of the water-table before the well was dug. Unfortunately, it was not always possible to obtain the depth to this cemented sand with accuracy, and readings are completely lacking for some of the wells.

Agriculture and Gardening

The water obtained by human or animal ' lift,' and the loose sand of the oasis, are prerequisites of oasis agriculture. The fact that non-halophytic plants grow at all in such saline water conditions indicates the existence of a nice balance between the various salts in the water supply ; this interesting problem of plant nutrition is being investigated. While the general distribution of the gardens is shown in Fig. 2, the details of the agricultural system may be obtained from Fig. 3, which is a plan of the garden behind the fort. This garden contains three wells, two with animal ' lifts ' and the third of the simple type which is not connected to the irrigation system of the garden. Water from the main wells is led along a series of channels about six inches deep which are scooped out of the sand, and the supply to the various branches is controlled by dams scooped up by hand.

For the most part, the various crops are grown within the irrigation channels themselves, and the young shoots and seedlings are protected from the sun's rays by small umbrellas of palm fronds. Under such conditions turnips, onions and tomatoes are grown. These vegetables receive moisture from every watering, which may take place several times a day. Squashes, such as melons and cucumber, millet and barley, and the fodder crop, alfalfa, are grown in more open plots fed by the irrigation channels. These open plots are usually divided into

small squares by banks of sand (see photograph), where young date-palms, which require frequent watering, are also often grown.

The majority of the date-palms are here concentrated into a small grove, and a few yards to the south is the shelter of palm fronds, which is used for storing the dates after cutting at the end of September. The remaining trees of the garden are primarily shade trees, such as the feathery tamarisks which are concentrated along the southern fence ; only the wattle remains—called wattle for convenience but more

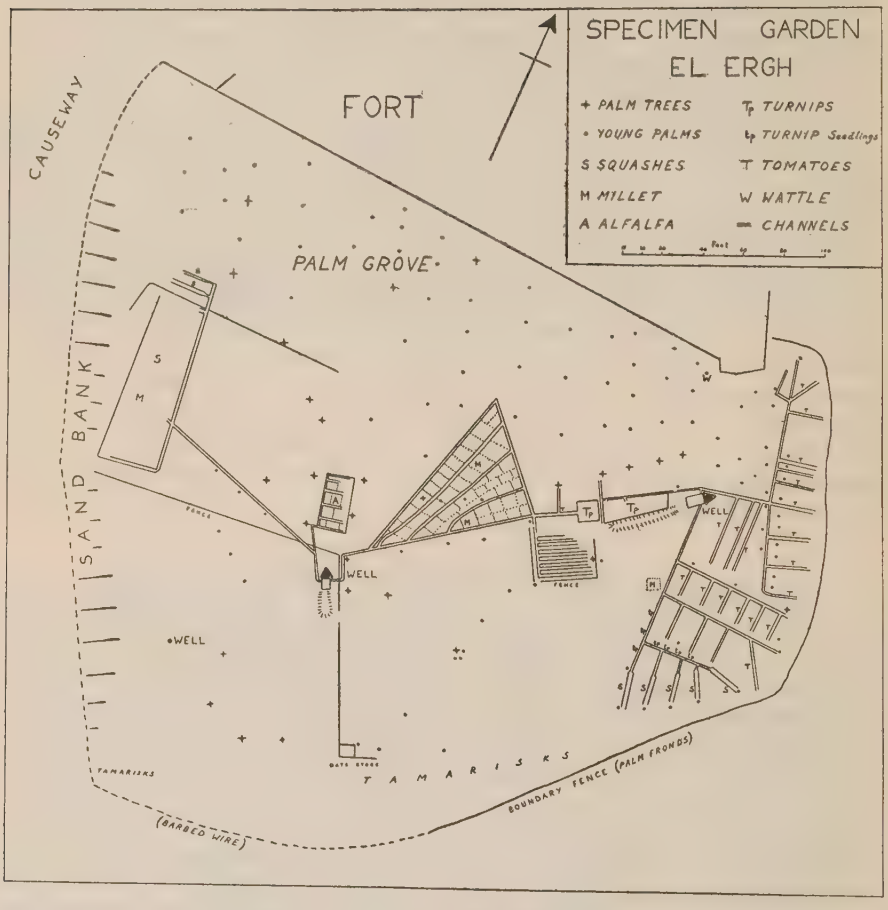

Fig. 3. Plan of a garden at El Ergh.

probably a species of mimosa—which is used for tanning and dyeing the local leather. Pomegranates are also used for the same purpose.

With some minor variations, this garden is typical of many in the oasis. The crops indicated are those in the ground at the beginning of October, and to give the complete picture, a diagram to illustrate the seasonal rhythm of agriculture has been made (Fig. 4). All these crops are food crops. Cotton could be grown but requires more water than the wells of the oasis can supply. Of these crops, tomatoes, which are planted in September and ready in February and March, are probably

the most interesting and the main cash crop of the oasis. Jalo produces the earliest tomatoes in the whole of North Africa, for which the cultivator receives eight piastres a kilo for the earliest crop, the price falling to about four piastres when other centres are in production. The crop is taken by lorry across the desert to Agedabia and Benghazi in the north.

In the spring, the cereal crops are sown. Wheat and barley are planted first and grow all over the garden from the beginning of March to about the end of June. These are followed by the millets, two crops of which are taken between July and the end of the year. The barley is sometimes used as animal fodder, together with alfalfa which is cultivated in the same season.

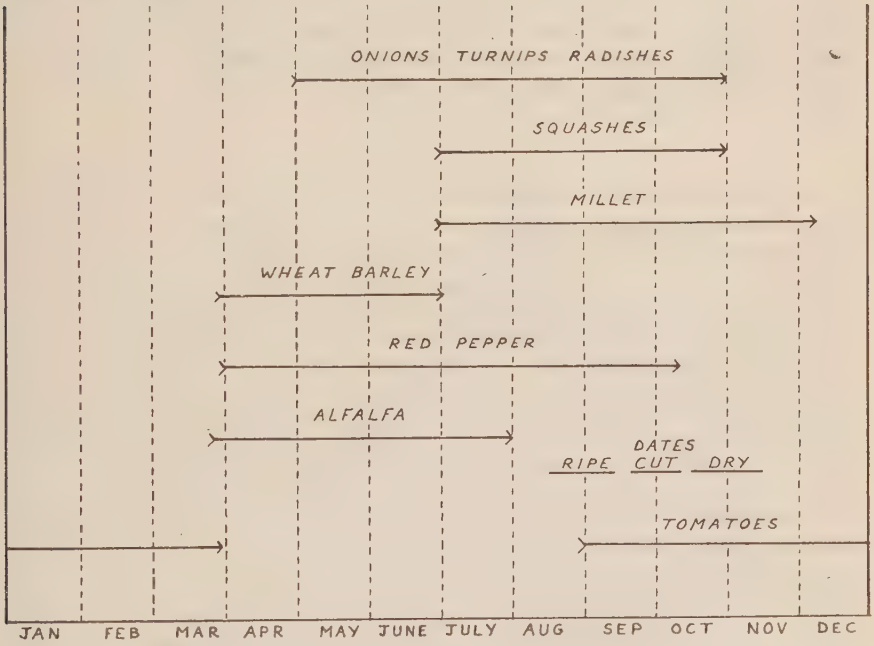

Fig. 4. Seasonal rhythm of agriculture at El Ergh.

Vegetables, such as onions, turnips and radishes, cucumbers, marrows and red pepper, are primarily summer crops, and cultivation comes to an end in October, when the young tomato plants are already in the ground.

Autumn is a busy season of the year for the Arab cultivator, for the date-palms which yield the basic food crop of the oasis are ready for harvesting. This operation involves cutting the dates not only from the palms in the gardens, but also from all the date-bearing palms scattered about the oasis which belong to that particular garden. The dates are ripe about the 1st of September, but are left on the tree till the 1st of October. They are then cut and placed to dry on palm-frond mats in the gardens or on the flat-topped roofs of the houses. Not all the dried dates, however, remain in the oasis as a food supply.

Some are exported across the desert to Benghazi ; others belong to Bedouin Arabs who own some of the date-palms in the oasis and buy the products of others. To the Bedouin also many other of the oasis products find a way by means of the weekly market.

Most of the gardens are worked by their owners, but there is also a system of share-cropping which operates, for instance, when an owner is aged and has no children to work the garden for him. Under such conditions a landless peasant may be given the sum of £3 (Egyptian) for himself and family together with land and seed. The worker then cultivates the garden and takes a quarter of the crop at the harvests, together with a perquisite such as the best bunch of dates or the most succulent cucumber or marrow. The remainder of the garden's produce goes to the owner. This practice seems to work amicably, for one peasant may work the garden year after year for the same owner. In the not so recent past the gardens would have been worked mainly by Negro slave labour.

Housing

Palm-frond shelters are sometimes erected in the gardens, and are intended to give relief from the sun during the heat of the day, thus performing the same function as the tamarisks. Thieving from the gardens is reputed to be non-existent, so that most of the cultivators are able to live within the settlement itself. The narrow winding alleyways between the houses and enclosed courtyards (Fig. 2) are typical of the settlements in the oasis. Apart from the village of Gescherra, where the houses are built of palm fronds, the other communities of Rasceda, el Lebba and es Scerruf live in flat-roofed houses constructed from unshaped pieces of limestone and palm logs as roof supports. El Ergh obtains its building stone from a small outcrop about two miles away to the north-east. Sand and lime are used as the cementing material for the walls, which are frequently continuous from one dwelling to another. The only breaks in the outside wall surfaces are where a low door of split palm logs has been inserted. The settlement is thus fairly compact and nucleated ; only a few houses straggle on the margins, mainly on the ridge on the north, but there are also occasional tents of the desert Bedouin.

Population

The total population of Jalo oasis is about 3500, according to local estimates, of whom about 1000 live in El Ergh itself. The subsidiary villages are much smaller but have the same pattern of life. Gescherra, for instance, has a population of about 500, Rasceda 600, and El Lebba 300. There is also a fluctuating population of desert folk who sometimes come to live within the oasis, especially at the time of the date harvest. This pattern of oasis life is, however, insufficient to give employment to all members of the community. There is, in consequence, frequent movement to the towns of the coastal fringe, such as Agedabia and Benghazi, for employment as labourers and artisans, or for service in the local Arab militia. The Emirial Guard for the

protection of the ruler is, for instance, drawn from the desert peoples rather than from those on the coast.

The community also receives other checks to population increase. Although the products of the oasis are probably sufficient to maintain life at a low standard and the potent water supply helps to make up some dietary deficiencies, epidemics are liable to break out which the very restricted medical facilities can do little to control. In the village of Gescherra, for instance, 84 children died recently in one visitation of whooping-cough of six weeks' duration, out of a total population of about 500. Sick returns from the dispensary book show that the main ailments, as diagnosed by the dispenser, are wounds by accident or by knife, and an interesting seasonal variation in other complaints. Respiratory troubles, including asthma and tuberculosis, occur mainly in winter, while stomach and intestinal disorders are most frequent in summer. Although conditions in Jalo are healthier than in other parts of Libya and malaria is not known in the oasis, the expectancy of life is not very high. A rough estimate of the crude death rate is 40 per thousand, of the crude birth rate 45-50 per thousand, and of the infantile death rate 35 per thousand.

Importance of Jalo

The days when Jalo was an important market on the slave route across the desert are now past, though many traces of the Negro influence in the population remain. Nevertheless, its importance as a stage-point on the desert route has not declined. It has, in fact, increased in importance now that the Senussi, who resisted the Italian occupation, govern the country, and the oases have lost their function as places of refuge. Camel caravans of about two hundred beasts can be observed making the journey from the southern oases to the coast, but it is the desert motor lorry which gives the oasis a new significance, permitting the quick export of such crops as tomatoes and dates, and bringing new skills and ideas to the desert dweller. The speedy lorry adapted to desert conditions, with low reduction gears and tyres with a large area of contact with the sand, does not, however, alter the fundamentals of oasis life : there is, as from time immemorial, an unceasing dependence on irrigation and water supply for subsistence.

Photographs facing p. 114, by Dr C. H. Gimingham; those facing p. 115, by the author.

[1] On October 5, 1951, when a south east wind was blowing, the temperature at Jalo rose to 106° in the shade of the Stevenson screen, and the relative humidity was only 9·5 per cent.

[2] This height is that used by the meteorological station at Jalo and was adopted as the local datum for all levelling operations. Jalo, in conjunction with Jarabub and Kufra, sends four-hourly weather observations to the aerodrome at El Adem in the northern plateau. Although the meteorological and wireless station was started by the Royal Air Force, it is now worked by Arab technicians.

[3] The analysis was made by Dr Williamson, Department of Soil Science, University of Aberdeen.

THE PEOPLING OF POLYNESIA

Review by Thomas B. Lindsay

The immediate success of Thor Heyerdahl's narrative of his adventurous voyage on the balsa raft *Kon-Tiki* will undoubtedly give added interest to his latest venture, a weighty and admirably produced volume sub-titled " The Theory behind the *Kon-Tiki* Expedition."

Mr Heyerdahl has for many years been an enthusiastic believer in an American origin for the Polynesians, and in his book, *American Indians in the Pacific*,* he has assembled every piece of evidence from his own experiences and from written sources which might serve to prove his theory.

Briefly, this theory is that there were two main migrations to Polynesia. The first, by raft, dated about A.D. 500 from a co-relation of Polynesian genealogies and South American archaeological evidence, consisted of bearded, fair-skinned, " Caucasian-like " culture bearers from Pre-Incan Peru, who made a drift voyage along the approximate route of the *Kon-Tiki* expedition to populate Polynesia in general ; and a second, by canoe, dated about A.D. 1200, of British Columbian coastal Indians, who after having settled in Hawaii went on from there to populate New Zealand as the Maori.

The evidence for all this is of a varied character, ranging from concrete facts, such as Mr Heyerdahl's own voyage, archaeological finds, and megalithic monuments, to speculative philology and mythology.

Doubt is cast on the view that the Polynesians could have come from Indonesia since they belong to that blood group in which the O factor predominates, as do the American Indians, while the Indonesians are richest in B. But the Filipinos, an Indonesian people, have also a predominance of O. The American Indian is generally conceded to be of Asiatic origin, yet the inhabitants of Asia have a predominance of the B factor. The study of serology has not quite lived up to the earlier expectation that it would solve all problems of racial origin and classification.

By far the largest part of Mr Heyerdahl's book deals with the peopling of Polynesia by his bearded, fair-skinned culture bearers from Peru. Much of his material is of the greatest interest, especially the botanical. Here is much of real importance to the study of early contacts of the New World with the Old.

Here, also, is the full evidence for the aboriginal Peruvian rafts, on the pattern of which Heyerdahl based his *Kon-Tiki*. The Peruvian use of the large balsa raft is granted, and that one such could make a voyage to a Pacific island group was vindicated by Heyerdahl himself. The rigging shown in the illustrations, however, is not Pre-Columbian by any means, and we may be permitted to wonder what theory caused the original voyagers to commit themselves to the open Pacific knowing they could not so return to justify it. The large seaworthy canoes of the Polynesian navigators with matting sails could hardly have been

developed to such excellence in the short time allowed if the canoe as such only came to Polynesia from Canada about the thirteenth century.

While many of Mr Heyerdahl's arguments founded on the study of currents and winds are valid, there is still no reason to deny that the practised Polynesian seafarer during the colonisation of the islands could, with better reason, have arrived at America, than that peoples with little need for seafaring should suddenly migrate into the unknown.

A predominating feature of the book is the author's obsession for finding " Caucasian-like " individuals in Polynesia and America, and he quotes extensively to this effect from the narratives of early explorers. Mr Heyerdahl does not, however, quote the innumerable less flattering descriptions by travellers not so credulous, nor are his quotations quite full enough, as can be seen by anyone who, for instance, reads the whole description of the Nutka in Captain Cook's voyages. " Their colour we could never positively determine, as their bodies were encrusted with paint and dirt, though in particular cases, when these were rubbed off, the whiteness of the skin appeared almost to equal that of Europeans."

American Indians are *not* a dark-skinned race, and under a layer of clothing paint or dirt the skin is often lighter coloured than that of many Europeans, but that does not make them Caucasians, which seems to be what is at the back of Mr Heyerdahl's mind. The average North West coast Indian of to-day is generally taken for a Chinaman or a Japanese by the casual observer, and his art and material culture, often loosely likened to that of Polynesia, show fundamental distinctions in both structure and historical development.

The American Indian type is extremely variable, and light skins and brown hair were not exceptional. The Mandans of the Upper Missouri showed these characteristics so markedly that they have been held to be descendants of Welshmen, said to have sailed to America in the twelfth century, and a comparative vocabulary of Mandan and Welsh was published to prove it. They and many other American groups have also been the Lost Ten Tribes, and stories of " white, bearded Indians " are legion. Naturally these light-skinned types appealed more to European taste, and this undoubtedly explains why Mr Heyerdahl's light-skinned brown-haired natives of Peru have disappeared. They were absorbed by the Spaniards. While on the subject of " Caucasian-like " characteristics, it might be pointed out that beards can be and are grown by American Indians. Owing to the fact that this is generally a moustache and chin growth, the beard would be exactly the type shown in most of the illustrations.

Most anthropologists will be unwilling to concede that races other than white are wholly devoid of inventiveness. The premise that Culture Heroes were " white men " is surely a proposition which is now somewhat outmoded.

* *American Indians in the Pacific :* The Theory behind the *Kon-Tiki* Expedition. By Thor Heyerdahl. $9\frac{3}{4}\times7\frac{1}{4}$. Pp. xv+821. 90 plates. 11 maps. London: George Allen and Unwin Ltd. 1952. 70*s*.

BLANTYRE : A SCOTTISH FOUNDATION IN NYASALAND

By W. B. Morgan

The construction of a settlement at Blantyre resulted indirectly from the failure of the Portuguese to extend their influence from the Zambezi up the Shiré valley. The subsequent entry of Livingstone and the missionaries into the ' gap ' revealed for the first time the existence of highlands suitable for European occupation. Although Jasper Bocarro crossed the Shiré near the Ruo confluence in 1616, and although the natives of the Morrumbala plateau were defeated by Portuguese forces in the late seventeenth century, yet there are no records of Portuguese attempts to occupy the Shiré valley. The pre-Livingstone maps of Africa offer only the vaguest suggestions regarding the geography of the region, and the great explorer himself, recorded that in the valley in January 1859 : " . . . Tingane was notorious for being the barrier to all intercourse between the Portuguese black traders and the natives of further inland ; none were allowed to pass him either way." [1] The results of the Livingstone expedition significant for the future of Blantyre were the exploration of the Shiré valley and highlands together with the shores of Lake Nyasa, and the founding of a mission at Magomero (Fig. 1) under Bishop Mackenzie by the Universities' Mission to Central Africa. However, in 1859 the Islamic Yao tribesmen of the lake area advanced southwards in search of slaves from amongst the Anyanja of the highlands. The Mission spent itself in vain efforts to defend the Anyanja. Finally, disease took so heavy a toll of the Mission members that by 1862 those who remained were forced to withdraw.

What the first Mission establishment needed for successful development was a site combining maximum penetration with easy access to the coast, as short an overland route as possible, not too close proximity to the Yao, and comparatively cool conditions in a populous district. The question of overland travel was very important since this had to be accomplished on foot, and therefore all imports suffered the heavy expense of carriers. Magomero, although on the plateau, was not a healthy site. It was in heavily wooded country. Its imported goods had to be carried an expensive distance, and it was too near the scene of Yao activities. The next attempt—the Livingstonia Free Church Mission settlement at Cape Maclear in 1875—was likewise too deep into Yao country, although not too difficult to reach with supplies. Like Magomero it was not a healthy site and after several deaths the post was abandoned and the Mission moved to Bandawe amidst the Atonga people dwelling about midway along the western shore of the lake.

In 1876 the Church of Scotland established its first mission station in Central Africa at Blantyre in the Shiré Highlands. Here was a site which satisfied all the necessary requirements and showed in its choosing a better appreciation of the geography of the country than had hitherto been the case. The head of navigation on the Shiré in

1876 was Katunga. Above this village lay rapids succeeded at twelve miles further upstream by the Murchison Falls and the cataracts and gorges which make up the central section of the Shiré valley. The journey upstream from Katunga involved portage past the falls section to the quiet waters of the upper Shiré, offering direct connection with Lake Nyasa. The missionaries of the Church of Scotland chose Katunga as the limit of their river traffic and developed a route from there up the steep flank of the Shiré Highlands. Where this route came to the general level of the Miocene peneplane at about 3000 feet, they established their post. The road from Katunga follows a spur between the Mwampanzi and Likubula rivers (Fig. 1). The spur was chosen since it offered the quickest and least densely wooded ascent. The valleys are extremely steep-sided with little or no flood plain. A route within them must avoid wash-outs and ravines, must cross many streams, and is always liable to removal by flooding. A fault step traced by Dixey [2] along most of the escarpment face provides an intervening stretch of level ground chosen as the site for a rest camp on this 30-mile walk. Blantyre was built at the crossing of the first large stream—the Mudi—after coming over the lip of the escarpment. The Mudi, although perennial, was not as excellent a source of water as doubtless the first settlers hoped, precisely because of the Mission's need to be in a populous district. Native settlement above the site polluted the water and rendered it unfit for drinking without considerable precaution.

Meanwhile in Scotland it was decided that there was need to establish a commercial company to do the trading work of the Mission. In 1878 the African Lakes Corporation, of Glasgow, was founded and the two Moir brothers were sent to Blantyre as joint managers. They built their headquarters at a mile from the Mission across the Mudi stream on a site subsequently named Mandala. Blantyre became the commercial centre of the Shiré Highlands with steamer connection to the coast. In the 1880's numerous missions were founded in the region of Lake Nyasa and the Highlands and attempts were made to stop the Slave trade. In 1883 Captain Foot came to Blantyre as British Consul. In 1888 Captain Lugard arrived to command the forces needed to guard trading activities and the missions. Blantyre became a military headquarters and it was here that the Makololo chiefs found refuge when the Portuguese advanced up the Shiré valley to defeat Mlauri in 1889. Development was also assisted by the Royal Scottish Geographical Society's support of the researches of Mr D. J. Rankin in the Zambezi delta. In 1889 he announced the discovery of the Chinde distributary of the Zambezi. This outlet possessed the narrowest and safest bar to cross and provided by far the best route for river traffic. In this period also Mr John Buchanan, then connected with the Scottish Mission, turned to commercial account the coffee plants—which had been introduced to Central Africa from the Edinburgh Botanical Garden in 1878—in the Blantyre district and from these came the seeds for plantations established locally and in the neighbouring district of Mlanje. Blantyre had now the added importance of being a market for an export crop. The Buchanan and other

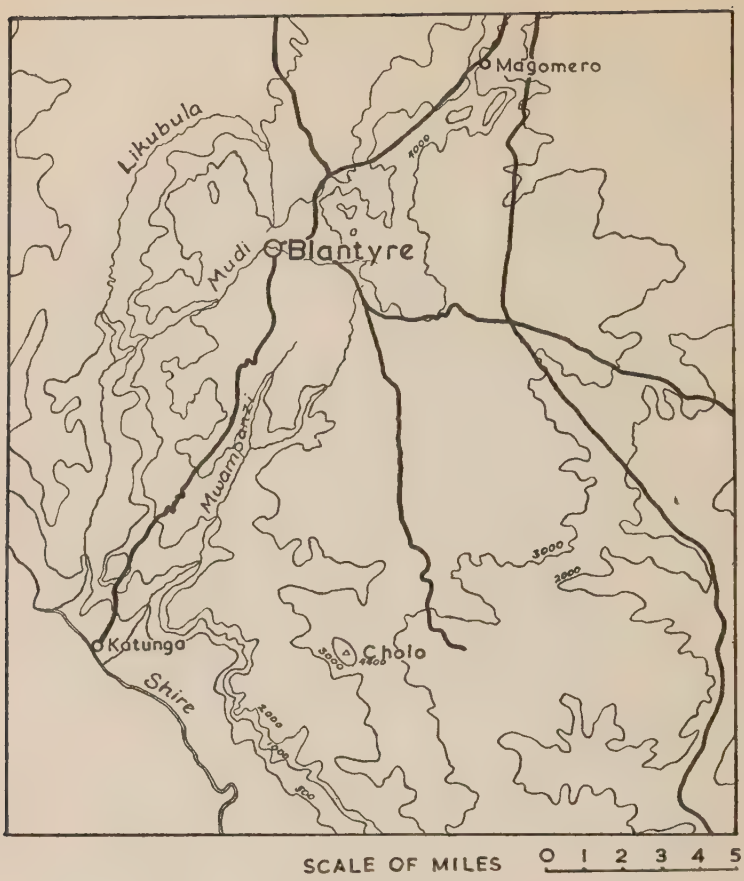

Fig. 1. Blantyre and the road system of the Shiré Highlands. From Sir H. H. Johnston, *British Central Africa*, 1897, by kind permission of Messrs Methuen and Co. Ltd.

estates in 1901 were purchased by Blantyre and East Africa, Limited, of Edinburgh.[3]

Sir H. H. Johnston, the first Commissioner of Nyasaland, or British Central Africa as it was then called, described the growth and appearance of Blantyre in the 1890's : " . . . for many years refugees from other parts of the Protectorate have been gathering round the Mission station, the Lakes Company, Sharrer's Traffic Company, and other large employers of labour, all of whom have brought men down from the lakes and up from the Zambesi, who have gradually made their permanent homes at Blantyre." [4] " It seems hardly correct to speak of it (Blantyre) as a town, as the houses are still very scattered, yet it is now constituted as a township and rather well laid out with roads." [5] Johnston referred also to the numerous coffee plantations round the town and to their tendency to move away in order to avoid contact with the " urbanised native." [6] He also calculated the numbers of Europeans resident in the Protectorate in 1896. His calculations show that of a total of 308, 119 were Scots, 123 English and Welsh, and 23 South African.

With the maintenance of the Katunga road as the chief line of entry Blantyre became a nodal centre, as the road system of Fig. 1 shows. Johnston emphasised this point : " As far back as 1891 we had commenced road-making. Captain Sclater had begun to clear a road from Chiromo to Zoa, with the intention of ultimately carrying on this road to Mlanje in one direction, and to Blantyre and Zomba in another. It was found, however, to be of more urgent need to the community that the road between Katunga and Blantyre should be made passable for waggons. Consequently, Captain Sclater undertook the reconstruction of the Katunga road, which proved to be a very lengthy and expensive business, and is not yet finally completed."[7] In spite of this work, the Katunga route was doomed to decline owing to its dependence on a river controlled not only by fluctuating precipitation but by a shifting sand bar at the Lake Nyasa outlet at Fort Johnston. From 1891, the level of the Shiré dropped until in 1896 the limit of navigation lay at the Pinda rapids just above Mount Morrumbala in Portuguese territory.[8] After 1896 the river rose and again became navigable for most of its length ; but by 1900 it had once more commenced to fall. The note-books of the District Commissioner at Chiromo record that by 1904 all imports to the Protectorate passed through Chiromo, and " in years of exceptional drought " goods were carried overland to Blantyre, a distance of 70 miles. Such conveyance necessitated the use of about 2000 carriers, at a cost each day of 3d. per head.[9] The distance covered by carriers is approximately 15 miles per day, and loads vary between 50 and 70 lbs. Accordingly, the cost of transport became extremely high, particularly for such material as galvanised iron, the standard roofing in the Protectorate. Between 1904 and 1907 at least, there were at Chiromo no vehicles, draught oxen or pack animals. In any case the beasts would have been very short-lived in the area owing to the presence of trypanosomiasis-carrying tsetse flies.

In 1895 negotiations were begun to build a railway from Chiromo

to Blantyre, in order to avoid the marshy stretch of the river above Chiromo and to speed delivery of supplies essential to the campaign against the slave traders. The work was commenced in 1902, and the contract was later extended in order to build the line to Port Herald further downstream. By 1913 another fall in the level of the Shiré made it necessary to continue the line to the Zambezi and two years later this was completed. The building of the Murraca-Dondo extension in Portuguese East Africa and of the Zambezi bridge at Sena connected Blantyre with the port of Beira by 1935.[10] The railway did not give Blantyre the importance one might have expected. The railway company established its headquarters and works on the banks

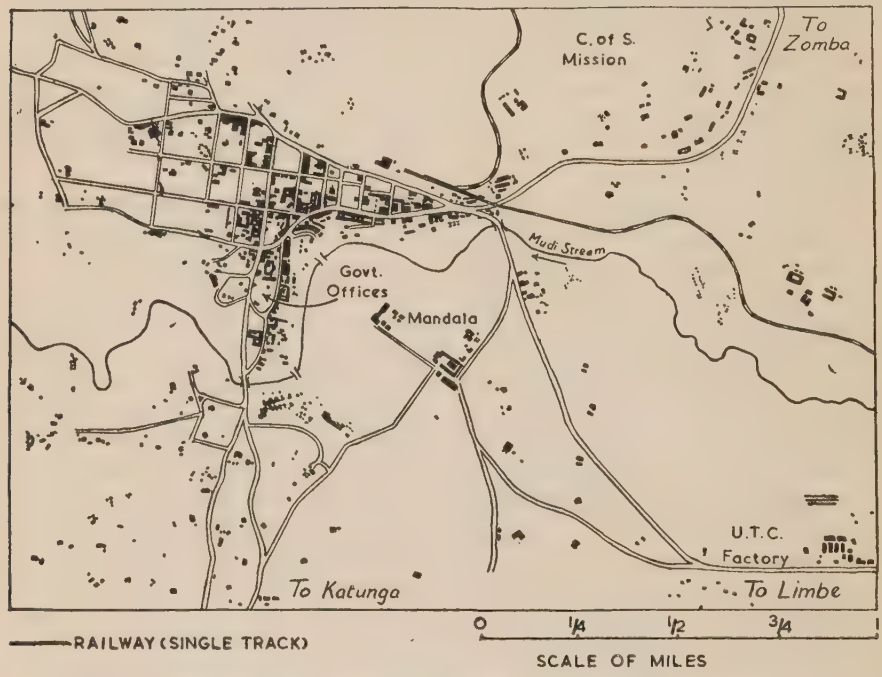

Fig. 2. Blantyre, 1948. From the Blantyre-Limbe Sheet published by the Directorate of Colonial Surveys (Crown copyright).

of the Limbe stream, the first major source of water crossed en route southwards from Blantyre. Thereby the company gained an independent water supply and adequate space for its many buildings and for the large native compounds needed. Since it became customary for trains to wait an hour at Limbe, the station there became in effect the station for Blantyre. The Customs Authority found it more convenient to have its headquarters at Limbe, and convenience with regard to loading goods led to Limbe's acquiring the tobacco auction floor and the headquarters of the Imperial Tobacco Company. Blantyre lost the lead in commercial importance.

With the turn of the century the areas under export crops had become more widespread in distribution, whilst the introduction of new crops gave greater importance to districts away from the original

Blantyre centre. In 1896, 320 tons of coffee were exported. In 1900, nearly 1000 tons were produced for shipment on an area of approximately 17,000 acres. After this came a slump due to failure to replace the trees once deterioration showed, to the attacks of the white stem borer, and to over-cropping. Coffee lost its lead to cotton, introduced about 1900. Cotton is less exacting in its requirements and was grown throughout the Highlands and in the Shiré valley. Over-cropping and declining yields led to replacement of cotton by tobacco as the chief export crop. Tobacco, first exported in 1893, suffered badly from the slump of 1930-31, but still holds the lead as a cash crop, especially among native cultivators. It is grown throughout the Highlands and in the regions lying south west and west of Lake Nyasa.[11] Tea has become the next most important product. The chief plantations are in the Cholo district in the south west of the Highlands, and around Mount Mlanje. The marketing of tea, like tobacco, centres on Limbe.

Blantyre lost its administrative importance as long ago as 1887 when Consul Hawes had the Residency built at Zomba. The building of the Government Offices close by the Residency in 1904 made Zomba the administrative centre of the Protectorate. Blantyre has remained the headquarters of the Commissioner for Southern Province and has retained the High Court. In 1945 the European population of Blantyre and its " immediate vicinity " was 379 compared with 280 at Limbe. However, the greater commercial importance of the latter was reflected in its larger Indian population—649 against Blantyre's 449—and in its African total of 6179 compared with Blantyre's 3594. To-day, Blantyre is mainly a residential town whose attraction lies either in its position as administrative centre for the leading province, or in its proximity to commercial life without being in the centre of such activity. In plan it shows the scattered housing on which Johnston commented, with heavily nucleated native compounds on the periphery. One may still discern the winding older roads connecting the Mission and Mandala with Katunga, although the major part of the road system now shows the rectangular form so common in colonial settlements (Fig. 2). Blantyre is still the headquarters of the Church of Scotland Mission and of the African Lakes Corporation, and enjoys the reputation of being the oldest settlement in all of what is now termed British Central Africa. At the moment its expansion is limited by shortage of water. Like Salisbury, the capital of Southern Rhodesia, Blantyre has grown at a faster rate than its provision of domestic water supplies. The Mudi stream has little reserve left to offer the township and fresh sources need to be found. The proximity of Blantyre to Limbe leads one to suspect that any further expansion on the part of either or both of these towns will eventually lead to their linkage. The process is being assisted by the fact that the only good tarred macadam road in the Protectorate is that between Blantyre and Limbe. Sites along this road are especially valuable for light industrial establishments, and the United Tobacco Company has built its factory almost midway between the two townships, forming part of what may well become a modern " ribbon development."

[1] David and Charles Livingstone. Narrative of an expedition to the Zambezi and its tributaries (1858-64). 1865. p. 76.

[2] *Vide* F. Dixey. The Physiography of the Shiré Valley, Nyasaland. Zomba: Geological Survey Department publication. 1925.

[3] S. H. F. Capenny. The Economic Development of Nyasaland : A Note on Scottish Enterprise. *S.G.M.*, 1904, 20 (7) : 371-376.

[4] Sir H. H. Johnston. British Central Africa. 1897. p. 176.

[5] *Ibid.*, p. 175. [6] *Ibid.*, p. 176. [7] *Ibid.*, p. 114. [8] *Ibid.*, p. 38.

[9] District books, Chiromo. At present kept at the office of the District Commissioner, Port Herald.

[10] An account of the construction of the railway is given in I.D. 1189. A Manual of Portuguese East Africa. Compiled by the Geographical Section of the Naval Intelligence Division, Naval Staff, Admiralty. 1920. pp. 414 et seq.

[11] The history of cash crops is discussed in Report of the Commission appointed to enquire into the financial position and further development of Nyasaland. Colonial Office. 1938.

THE AMERICAN GEOGRAPHICAL SOCIETY : 1851-1951

Geographical societies had already been established in the capitals of France, Prussia, England, Mexico, Brazil, and Russia when, in 1851, The American Geographical and Statistical Society of New York was "instituted for the collection and diffusion of geographical and statistical information." A Charter was granted by the Legislature in 1854 and amended in 1871, when the words "and Statistical" were omitted from the name and the object of the Society was defined in greater detail. Since 1851 the American Geographical Society has played a very prominent part in the advancement of geography. No one is better qualified to record and discuss its history* than Dr John Kirtland Wright, Director of the Society from 1938 to 1949, or to tell the fascinating story with more grace, including the grace of humour.

The vitality, achievements, and prestige of the Society may be ascribed to adherence to its leading principles. "To maintain a library and map collection and to publish works of geographical value have been the cornerstones of its policy from the outset. It has never accepted the doctrine that a sharp line should be drawn between geography and what is not geography or that its interests should be confined within an academic definition of the subject. This has given its interests breadth and its activities flexibility. On the other hand, it has limited the range of its chief activities to enterprises designed to advance geography along scientific, scholarly, professional, and educational lines, and, except in its lecture courses, has in general avoided attempts to popularise the field. It has made this limitation, not because of blindness to the need for disseminating sound geographical knowledge through popular channels, but for practical reasons. With the funds, personnel, and facilities at its disposal, the

Society has felt it preferable to concentrate upon what it could do well, rather than to spread its efforts too thinly."

How much has been done well is evidenced by the publications of the Society—its *Bulletin*, succeeded by the *Geographical Review*, its *Special Publications* series, and maps and atlases—familiar to geographers the world over. But a fuller and more intimate appreciation emerges from Dr Wright's detailed account—too detailed even for a cursory survey, as is obvious on examining the index and the ten pages on which are listed the publications of the Society during its century. From the years of Henry Grinnell and Judge Charles Patrick Daly to those of Archer Milton Huntington and Isaiah Bowman and to the present leadership of Dr Richard Upjohn Light and Professor George H. T. Kimble, the Society has never lacked personalities to further its aims or, occasionally, to extricate it from the slough of despond. In assessing the activities of the Society, during the past hundred years, it may be noted that in the years before 1916, annual membership did not exceed 1500, and that many developments became practicable owing to legacies and donations. The headquarters of the Society, since 1911 at Broadway and 156th Street, are a testimony to its progressive spirit, as well as to that of New York, which at the time of the founding of the Society had only half a million inhabitants.

The first paper read to members, by Asa Whitney, dealt with a proposed railroad to the Pacific, a topic much to the fore during the first two decades of the Society's life. In 1852, a "paper of the evening" was a letter dated Banks of the Zouga, October 8, 1851, from "Rev. David Livingston [*sic*], D.D., an English [*sic*] missionary in South Africa, giving an account of his recent discoveries in that region." Livingstone was later elected a Corresponding Member, and sent accounts of his ascent of the Shiré and of his exploration of Lake Nyasa. Another Scot, Rev. Dr James C. Adamson, one of the founders of the South African College (later the University of Cape Town), became associated with the Society in the 'fifties and served as Recording Secretary for a year.

As in other geographical societies, exploration was one of the major preoccupations, and the American Geographical Society rendered many general services to exploration, particularly of the polar regions, and also specific services to explorers and their expeditions, from Kane's expedition in search of Franklin to the air surveys of the present day. Robert E. Peary, a medallist of the Society, served as its President from 1903-1907. In more recent years, many expeditions have been facilitated by information and cartographic work supplied by the staff of the Society.

Other services rendered to geography and to the United States are too numerous to be recorded in a brief review, but it should be mentioned that the American Geographical Society played its part in inducing the U.S. Government to convene the International Meridian Conference in Washington in 1884, which led to the world-wide adoption of the Greenwich prime meridian. It is also noteworthy that, inspired by William Morris Davis, who recognised the value of international geographical excursions, the Society organised

the memorable Transcontinental Excursion of 1912. Among the many prominent geographers taking part were George G. Chisholm and Alan Grant Ogilvie.

In 1920, the latter was appointed to organise the Hispanic-American Division, which he directed until he was appointed to succeed Chisholm at the University of Edinburgh in 1923. Undoubtedly the Map of Hispanic America, 1 : 1,000,000, the so-called Millionth Map, was the Society's largest undertaking. It took twenty-five years to complete the first edition, and it is fitting that Dr Wright has devoted a chapter to this outstanding work and to the ensuing programme of research and publication in the Hispanic-American field.

The policy of " guns before butter " has inevitably affected the policies of scientific and other cultural societies, but, in the words of Dr Kimble, the American Geographical Society continues " to press forward (at times a little short of wind and always short of funds) with our regular tasks—together with one or two others that we have been foolhardy enough (as some might think) to add to them. However, it has always seemed to us that the one thing a society such as ours has to fear more than overdraft is ossification." Concerted and systematic measures are now being undertaken to stimulate research—for instance, in medical geography—to encourage training of individuals possessing the requisite specific skills, and to promote more efficient and immediate dissemination of knowledge.

" The needs for geographical understanding are too urgent, and the American Geographical Society's record of achievement in meeting these needs is too impressive, to warrant doubt that Destiny will continue to look with favour on our institution as its second century unfolds." To this conclusion of Dr Wright's epilogue must be added here the message signed on behalf of the Royal Scottish Geographical Society by the President, Vice-President, and Hon. Secretary in August 1952 : " To the American Geographical Society, New York, on the Occasion of the Hundredth Anniversary of its Foundation, the Royal Scottish Geographical Society sends Greetings. They pray that the outstanding services rendered by that Society to Geographical Science in the Western Hemisphere may long continue to adorn its acknowledged leadership there, and serve ever further to cement the ties of friendship and co-operation uniting the culture of the New World with that of the Old." J. H. K.

* *Geography in the Making*. The American Geographical Society, 1851-1951. By John Kirtland Wright. Foreword by Richard Upjohn Light, President of the Society. 10×6½. Pp. xxi+437. 20 figs. 30 plates. End-paper maps. New York: The American Geographical Society of New York, 1952. $5.00.

REVIEWS OF BOOKS

EUROPE

About Britain. Edited by GEOFFREY GRIGSON. Production Editor : Ruari McLean. 8½×5½. Each volume, pp. 92. Illustrations in colour and black-and-white. No. 1. *West Country.* By GEOFFREY GRIGSON. No. 2. *Wessex.* By GEOFFREY GRIGSON. No. 3. *Home Counties.* By R. S. R. FITTER. No. 4. *East Anglia.* By R. H. MOTTRAM. No. 5. *Chilterns to Black Country.* By W. G. HOSKINS. No. 6. *South Wales and the Marches.* By W. J. GRUFFYDD. No. 7. *North Wales and the Marches.* By W. J. GRUFFYDD. No. 8. *East Midlands and the Peak.* By W. G. HOSKINS. No. 9. *Lancashire and Yorkshire.* By LEO WALMSLEY. No. 10. *The Lakes to Tyneside.* By SID CHAPLIN. No. 11. *Lowlands of Scotland.* By JOHN R. ALLAN. No. 12. *Highlands and Islands of Scotland.* By ALASTAIR M. DUNNETT. No. 13. *Northern Ireland.* By E. ESTYN EVANS. London : William Collins, Sons and Co. Ltd, 1951. 3*s* 6*d* each.

Sponsored by The Brewers' Society, being their contribution to the Festival of Britain, these attractive guide-books have been published at a most reasonable price. Each volume deals with a well-defined area and gives essential facts about the scenery, natural history, buildings, people and their activities, followed by information about tours and by a selective gazetteer of places and points of special character or interest. The illustrations are good, and the detailed commentaries on routes are accompanied by adequate map strips. Bibliographies include references to more detailed guide-books containing information as to hotels, early closing days, etc.

Prepared under the direction of an editorial board which includes geographers, the series has been carefully planned. Whilst it would be possible to indulge in a detailed criticism of individual volumes—of those on Scotland, for instance—the *About Britain* guides as a whole are of service to the casual tourist. I. E. C.

Tempestuous Eden. By URSULA VENABLES. 8½×5½. Pp. 239. 28 illustrations. London : Museum Press Ltd, 1952. 18*s*.

Zoologists and bird-watchers, Mr and Mrs Venables took a cottage in Shetland, that Mecca of bird-watchers, and seem to have no regrets. The book doubtless is of value to zoologists, but in addition, it paints a picture of the Shetland scene, which, in warm humanity and sympathetic understanding, it is hard to match. Mr and Mrs Venables wisely recognised that while the Shetland crofter has a low material standard of life, the skills necessary to wring a living from the hard environment require ability and endurance often lacking in the more sophisticated majority of our industrialised population. As a consequence they respected their neighbours and were in turn respected, taking their place in the life of the community to a remarkable extent. As a result, they can communicate the Shetland outlook and mode of life to southerners to an extent impossible perhaps to a Shetlander. Curiously they do not seem yet to be at home in the local tongue and make some slips in presenting it in the book. R. M.

The Scottish Jacobite Movement : A Study in Economic and Social Forces. By GEORGE PRATT INSH, C.B.E., M.A., D.LITT. 8½×5½. Pp. xii+194. Frontispiece. Edinburgh : The Moray Press, 1952. 15*s*.

This sketch of the Scottish Jacobite Movement against its economic, social and regional background is charmingly executed in six dialectically related essays. The importance of the 1681 Parliament, in relation to constitutional Jacobitism, to promotion of Scottish trade and industry under the pre-Union mercantilist policy, and to the pacification of the Highlands, is particularly stressed. The picture of the Highlands in 1681 is too orthodox and romantic, and the view of the post-'45 Government factors as " the coarse, dull emissaries of the raw materialistic civilisation of the south," too facile to be entirely acceptable. But the graphic study of the mystical and pro-Jacobite Episcopalianism of the North-East, and the daring re-assessment of James " Ossian " Macpherson which identifies his European triumph with the spiritual victory of Scottish Jacobitism, are outstanding. A. G. M.

The Making of our Towns. By Sir William Savage, M.D. 8½×5½. Pp. 189. Frontispiece. 15 figs. London: Eyre and Spottiswoode Ltd, 1952. 21*s*.

This refreshingly written and informative book on the towns of England and Wales is the work of a Past President of the Society of Medical Officers of Health. In spite of its easy readability, it contains a good deal of information which is not very readily accessible, on what may fairly be described as the historical geography of the English town. This information is displayed by clear accounts of changes in social life, administrative organisation, and physical characteristics of the urban scene, in a manner which, for example, makes it seem almost as easy for us to picture medieval Winchester as a good modern guide-book would enable us to picture a present-day town which we had not visited. Although Sir William would probably not describe himself as a geographer, and quotes few works by geographers, we would find him much at home in our midst. The book is illustrated by some well-chosen maps and plans. F. H. W. G.

Yorkshire—North Riding. By Oswald Harland. 8½×5½. Pp. viii+390. 49 illustrations. Map. [The County Books.] London: Robert Hale Ltd, 1951. 15*s*.

Few counties contain greater contrasts in scenery and in patterns of life than this northern and north-eastern third of Yorkshire. The busy holiday resorts of the east coast, the heavy industry of Cleveland and the Tees estuary, the hill farming of the uplands and the mixed farming of the valleys and plains are a few of the many varieties which the author sets out to survey, mainly by walking. The book never sinks to the level of a guide-book: like a visitor to a museum, the author lingers over some details and passes lightly over others, and his selections for special notice may differ from those that others might make. But this enhances rather than detracts from the interest of the book, and it must be given a very high place in *The County Books* series. S. C. F.

Yorkshire—East Riding. By J. Fairfax-Blakeborough. 8½×5½. Pp. viii+286. 49 illustrations. Map. [The County Books.] London: Robert Hale Ltd, 1951. 15*s*.

The breeding and training of racehorses and hunters is of sufficient importance in the East Riding to warrant a whole chapter being devoted to it. But when three chapters are exclusively concerned with the subject and it also forms a substantial part of five of the other six chapters, the geographical value of the book becomes negligible. There is no mention of literary associations—Winifred Holtby's name, for instance, is not mentioned—nor is anything said about the special type of agriculture practised on the Yorkshire Wolds. The chapter on "Lore, Legends, Customs and Dialect" stands out as a pleasant relief in an otherwise dull book. S. C. F.

Cambridgeshire, Huntingdonshire, and the Isle of Ely. By E. A. R. Ennion. 8½×5½. Pp. xiv+256. 49 illustrations. Map. [The County Books.] London: Robert Hale Ltd, 1951. 15*s*.

Writing with the enthusiasm of a loyal scholar of Cambridge who knows intimately every aspect of his subject, the author treats Cambridgeshire, Huntingdonshire and the Isle of Ely as one well defined territory divided into Fen, Forest and Field, or Peat, Clay and Chalk, to which division all the past and present of this old and interesting land are related. There is matter here for the student of geography, geology, history, and for the lover of the countryside. A book to be enjoyed at leisure. R. T. C.

Suffolk. By William Addison. 8½×5½. Pp. xii+312. 49 illustrations. Map. [The County Books.] London: Robert Hale Ltd, 1950. 15*s*.

The human geography of Suffolk more than compensates for a lack of spectacular scenery. The fascinating story is ably told, and includes references to the ship burials at Sutton Hoo and Snape and to the many illustrious names associated with the county, as well as accounts of many places of special interest, such as Dunwich. There is an interesting section on Breckland, now in part being put to economic use. R. B. S.

Denmark, 1952. $7\frac{1}{4} \times 5$. Illustrated. End-paper maps. Copenhagen : Royal Danish Ministry for Foreign Affairs and the Danish Statistical Department, 1952.

In this elegant and beautifully illustrated book on Denmark, the reader will find answers to most of the queries he is likely to put about that progressive country. Beginning with a survey of its history from earliest times, we are reminded that for nearly thirty years of the eleventh century Denmark and England shared the same Danish kings. Other sections of the small volume describe the Land and People, the Constitution, Administration, Diplomatic and Consular Service, Education, Finance, and Agriculture. One could not wish for a more compact or authoritative account of a very friendly country " which likes to be visited." I. W. H.

Norddeutschland und angrenzende Gebiete im Eiszeitalter. By Paul Woldstedt. 9 ×6. Pp. xii +464. 97 figs. [Geographische Handbücher.] Stuttgart : K. F. Koehler Verlag, 1950.

The North European Plain is a classic region for the glacial morphologist and stratigrapher, and it is pleasant to welcome a most informative book on the Quaternary period and its effects on the landscapes of the Netherlands, Denmark, Germany north of the Hercynian lands, and Poland. This study is both comprehensive and highly technical. As such it is hardly suitable for the general reader, but it is an excellent source-book for the advanced worker. Professor Woldstedt seeks to give the glacial history of key areas and employs numerous illustrations, correlation tables, and pollen analysis diagrams. There is also a study of changes in sea-level, the prehistoric archaeology of Quaternary and later times, and the post-glacial colonisation of the lowlands by vegetation. K. W.

Return to Normandy. By Vivian Rowe. $8\frac{1}{2} \times 5\frac{1}{2}$. Pp. 191. 17 illustrations. End-paper sketch map. [Windows on the World.] London : Evans Brothers Ltd, 1951. 12*s* 6*d*.

This most attractive book will interest especially those who have had the good fortune to travel in Normandy on vacation, and also those who have visited the province in less happy circumstances during the late war. Mr Rowe conducts his readers on a series of tours through the Normandy countryside, sampling the local food and drink, and examining with leisurely speculation the numerous local antiquities. There is, in the Normandy landscape, an extraordinary consciousness of the past, so closely connected with England over many centuries : every little tower and every great cathedral has its restless memories of a Henry, a William, or an Edward of England. This is all brought home to the reader most vividly, and Mr Rowe has a remarkable geographical sense, and feeling for the landscape, particularly well displayed in his chapter on Mont St Michel. A. M.

Short Guide to Paris. Edited by L. Russell Muirhead. 6×4. Pp. xl+244. 40 maps and plans. [The Blue Guides.] London : Ernest Benn Ltd, 1951. 15*s*.

Provided with forty introductory pages of useful matter and a comprehensive index, this *Blue Guide* is full of historical and literary allusions, descriptions of buildings, etc. Handy for the pocket, this encyclopaedic book is a *sine qua non* for the visitor to Paris. H. S.

Oberammergau Journey. By Bernard Newman. $8\frac{1}{2} \times 5\frac{1}{2}$. Pp. 240. 33 illustrations. 9 sketch maps. London : Herbert Jenkins Ltd, 1951. 18*s*.

This account of a journey through Belgium and Germany to the Tirol, and back by the Black Forest, Alsace and Luxembourg, can be warmly commended as a model of what a travel book should be. The author is wise enough to know that readers are more interested in the places he visits than in his personal experiences. The journey was by bicycle, but incidents peculiar to this mode of travel are kept in the background. It enabled him, however, to make closer contacts with the people than is usual with most visitors, and his comments on their reactions to present circumstances are always sagacious. The central chapter, " Dramatic Pilgrimage," is an excellent and comprehending description of the Oberammergau Passion Play. S. C. F.

The Dolomites. By C. Douglas Milner. $9\frac{3}{4}\times7\frac{1}{2}$. Pp. xiv+105. Frontispiece. 150 illustrations. 6 sketch maps. London : Robert Hale Ltd, 1951. 25*s*.

In this beautifully produced book, Mr Douglas Milner gives a delightful account of the fascinating peaks and valleys of the south Tirol. Though the book is mainly for the mountaineer, who will find it an excellent guide, the author has not neglected the ordinary visitor and pedestrian, to whom the region also offers endless attractions, for, as he says, " the Dolomites are what you care to make them . . . and middle courses have much merit." Many people will prefer to gaze up at the startling peaks from the green valleys, but the more ambitious Mr Milner lures higher with the promise : " I at least would say, that of all the rock-climbing I have ever done, that of the Dolomites carries off the palm for thrills." The book is magnificently illustrated with the author's own photographs, and there are helpful map-diagrams.

I. W. H.

A Traveller in Venice and in Cities of North-East Italy. By Derek Patmore. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 183. Frontispiece. 25 plates. End-paper plan of Venice. London : Methuen and Co. Ltd, 1951. 15*s*.

This very pleasant book of travel is not confined to Venice. The author takes us also on a tour to other towns and villages : to Castelfranco, Asolo—which Robert Browning called " the dearest place in all the world," a name which modern visitors have been heard to apply with another meaning to Venice itself—Verona, Vicenza, Mantua, Ravenna, and others. Mr Patmore's special emphasis is on pictures and architecture, and to these he is a valuable guide ; but he does not disdain to tell us of good restaurants, and to select for us the best choice on the menu, or to discuss hotels, accommodation and other needs of the ordinary traveller. Anyone contemplating a visit to this region, the cradle of Italian art, could not do better than pack in his hand-bag such a useful and convenient volume. I. W. H.

ASIA

Turkish Crossroads. By Bernard Newman. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 258. 48 illustrations. 7 sketch maps. London : Robert Hale Ltd, 1951. 18*s*.

Mr Newman presents a kaleidoscopic picture of Turkey as seen in 1951, one year after the electoral victory of the Democratic Party. As an enthusiastic Turcophile, he perhaps skims too lightly over the surface of the republic's problems : his style is anecdotal. However, his account of often amusing and always interesting observations provides much food for thought. For instance, in modern Turkish peasant agriculture Scottish readers will readily recognise features paralleled in eighteenth-century Scotland. Mr Newman is fully alive to Turkey's unique strategical position; he implies that geographical position in itself involves a permanent antagonism between Turkey and Russia. On the other hand, his optimistic picture of the social revolution in Turkey induces the speculation as to whether the other successors to the Ottoman Empire will pursue a similar course to a similar end. A. G. M.

Mountains of Tartary. By Eric Shipton. $8\frac{3}{4}\times5\frac{5}{8}$. Pp. 224. 30 illustrations. End-paper sketch map. London : Hodder and Stoughton Ltd, 1951. 20*s*.

Mr Shipton deals with an attractive land which many would like to visit but which few have any chance of seeing. During his two periods as Consul at Kashgar, amounting in all to four years, he had opportunities of exploring the mountainous country bordering Sinkiang and attempting several of the unknown and unclimbed mountains, at times being accompanied by his wife or by Mr Tilman. The book describes not only his journeys from and to Sinkiang by the Karakoram Pass and the Hunza territory, but mountain areas as widely separated as the Bogdo Ola, east of Urumchi, and the Pamirs in the south. Mr Shipton obviously found the whole country most fascinating, and he communicates this to his readers. The illustrations are good, but we would plead for better maps. The graphic descriptions in the book will make its readers long for the opportunity of visiting this little-known country.

A. H.

China to Chitral. By H. W. Tilman. 9×6. Pp. xii+124. 69 photographs. 4 maps. Cambridge : University Press, 1951. 25*s.*

In 1949 the author journeyed from Shanghai to Urumchi by bus and plane to join Mr Eric Shipton. Their object was the exploration of the Bogdo Ola Group east of Urumchi, and Chakar Aghil, south west of Kashgar. The two were not very successful in their ascents. Later they separated and in thirty-five days the author found his way through mountainous country from Kashgar to Chitral.

The book is written in a most breezy style, with wit and humour, and the author has keen observation, all of which combines to make it a most readable book.

A. H.

The Chinese in Southeast Asia. By Victor Purcell, c.m.g., ph.d. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. xxxvii +801. 3 maps. Bibliography. [Issued under the auspices of the Royal Institute of International Affairs and the Institute of Pacific Relations.] London : Geoffrey Cumberlege, Oxford University Press, 1951. 50*s.*

Dr Purcell, historian and erstwhile colonial official, efficiently dispels our ignorance of the largest non-native group in South East Asia. He takes each of the seven countries in turn and, after describing briefly the present-day distribution of the Chinese, proceeds to unfold their history over the last 300 years. The narrative is enriched by numerous quotations from first-hand observers, and recent events are enlivened by the author's experience. He shows the changing economic role of the Chinese and, where the evidence allows, the degree of intermixture of blood and culture.

Although in the conclusion Dr Purcell shows considerable sympathy towards the Chinese, the preceding account is entirely impartial. The book, however, is about the Chinese to the rigid exclusion of everything else and it rests with the reader to maintain perspective. It is a scholarly book yet easy and even exciting to read.

O. H.

Japan : Meerbestimmtes Land. By Ludwig Mecking. $7\frac{3}{4}\times5\frac{1}{4}$. Pp. 179. 15 figs. 27 photographs. 33 tables. Folding map. [Kleine Länderkunden.] Stuttgart : Franckh'sche Verlagshandlung, W. Keller und Co., 1951. *DM* 9.80.

This book is the fruit of wide reading and of personal observation made in the course of several journeys. The main thesis is suggested by the sub-title : " a land whose fortunes have been determined by the sea." The author begins with the earliest discoveries by travellers from the West and goes on to the " great awakening " of the nineteenth century. The national history and character are reviewed in relation to the physical features of the islands and, above all, to the maritime situation. In considering the rise to political and economic power in the present century, it is pointed out that much more has been due to the sheer will of rulers and people than to wealth in raw materials.

Reasons for Japan's temporary eclipse are found in its inordinate appetite for land and its inadequate powers of digestion. The last chapter shows the astonishing recovery already made and the probable repercussions.

R. T. C.

INDIAN OCEAN

The Shoals of Capricorn. By F. D. Ommaney. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. viii+322. 15 illustrations. End-paper map. London : Longmans, Green and Co. Ltd, 1952. 21*s.*

These shoals lie in a great crescent in the Indian Ocean between the Seychelles and Mauritius. Mr Ommaney was sent to examine them from the point of view of large-scale fishing. It was a fortunate choice, for it has provided another of his delightful books. Nothing in this tropical area is overlooked. There is plenty about flying fish, sharks, turtles and other marine life, also the giant tortoise. But what is more interesting is the series of chapters on the European and coloured population of the Seychelles, Aldabra, Mauritius, and other islands. There are frank, outspoken reflections on the sociology of these islands, with unsparing criticisms and suggestions, often suffused with humour. The book is most readable and, one feels, entirely trustworthy. It is a welcome account of little-known places.

R. N. R. B.

AFRICA

No Woman's Country : Travels in the Anglo-Egyptian Sudan. By MICHAEL LANGLEY. 8½ × 5½. Pp. 221. 58 illustrations. End-paper maps. London : Jarrolds Publishers (London) Ltd, 1950. 15*s*.

In this record of a nine months' visit to the Anglo-Egyptian Sudan, there is a refreshing combination of the first impressions of an inquiring mind and the mature opinions of British and Sudanese residents. The picture which Mr Langley paints is typical of much of Africa to-day in the co-existence of modern technical achievements and primitive and often savage customs, and his completed canvas is not only fascinating but also challenging. K. M. M.

Relational Patterns of Kampala, Uganda. By EDWIN S. MUNGER, PH.D. 9 × 6. Pp. xi + 165. 64 figs. Bibliography. (Planographed). [The University of Chicago Department of Geography, Research Paper No. 21.] Chicago : University of Chicago, 1951. $3.00.

Mainly by personal contacts, through interpreters when language proved a barrier, Dr Munger has collected, in his nine months' stay in Uganda, the mass of information which is presented in this study of Kampala. The bulk of the work, which includes many attractive photographs and some interesting maps, is concerned rightly with relational patterns in Uganda itself, but there are also sections dealing with established relations both within and beyond the confines of East Africa. Careful studies of this nature are all too few in the literature relating to African development, and this work has its main value in the revelation of the intricate relationships which exist between Africans, Asians, and Europeans in the small compass of a rapidly developing modern municipality. K. M. M.

Venture to the Interior. By LAURENS VAN DER POST. 8 × 5¼. Pp. xiii+241. Frontispiece. 3 sketch maps. London : The Hogarth Press Ltd, 1952. 12*s* 6*d*.

Colonel Van der Post was sent to Nyasaland to examine the Mlanje and Nyika plateaus on behalf of the British government. Why, or with what result, we are not told, so that what might have given the book a unity and purpose is missing. The first two chapters are autobiographical and thereafter we come to an account of the journey, the object of which we are not allowed to know. There is plenty of incident, ranging from the comic to breath-catching tragedy. Those who know Africa will find themselves transported back as they follow the narrative and description. Two chapters end with an account of the author's dreams, and we must frequently follow him into other continents and other times as some incident in the African journey reminds him of them. However, the book is very well worth reading, though the geographer may perhaps be excused for wishing that some account of the topography were given in addition to descriptions of the impression it created on Colonel Van der Post. R. M.

Gold and the Gospel in Mashonaland, 1888 : Being the Journals of (1) The Mashonaland Mission of Bishop Knight-Bruce, (2) The Concession Journey of Charles Dunell Rudd. Edited, respectively, by CONSTANCE E. FRIPP, M.B.E., and V. W. HILLER. 10 × 6½. Pp. ix+246. 10 illustrations. 2 maps. [Central African Archives : Oppenheimer Series, No. 4.] London : Chatto and Windus, 1949. 25*s*.

This is a volume which will be welcomed by both scholars and all those interested in South Africa and the part played in her history by the twin forces of missionary zeal and economic enterprise. Although the publication in one volume of the journal of Bishop Knight-Bruce and of Charles Dunell Rudd has been undertaken for convenience, it is a most successful venture, as the two missions covered much the same area and period of time and one, therefore, throws light on the other. The difficult task of editing these personal records has been carried out with a view to facilitating the reader's progress along some of the more involved journeys, though in some cases it is not easy to identify places whose importance can have been but transitory. K. M. M.

AMERICA

Wasa-wasa : A Tale of Trials and Treasure. By HARRY MACFIE and HANS G. WESTERLUND. Translated from the Swedish by F. H. Lyon. 8½×5½. Pp. 244. 2 sketch maps. Stockholm : Albert Bonnier Forlag, 1945. London : George Allen and Unwin Ltd, 1951. 15*s*.

This story of adventure in the early part of this century in Arctic Canada and Alaska has the authentic note of truth, which is stranger than fiction and much more poignant. The people and the animals encountered are real, the brilliant word pictures are true to life. Here are forest fires, gold diggers, hunting and trapping adventures at first hand and at their best. A book which will delight all who know the region and which will attract and enthral those who do not. I. W. H.

British Columbia : Its History, People and Industry. By FRED H. GOODCHILD. Foreword by Byron I. Johnson. 8½×5½. Pp. 219. 15 illustrations. Map. London : George Allen and Unwin Ltd, 1951. 18*s*.

Larger than the combined areas of Britain and Japan, and with a population approximating that of Glasgow, Canada's most westerly province, because of its geographical location and natural resources, is a land of great achievement and even greater promise. Mr Goodchild has provided a comprehensive survey of human activities in British Columbia, with notes guiding the reader to more detailed information. Geography, history—including recent developments in the north, lumbering, fisheries, agriculture, minerals, water-power, communications, health, social welfare, education, the press, and tourism are among the subjects discussed. A greater number of illustrations would seem desirable, but the map—40 miles to one inch—is serviceable. This up-to-date book can be recommended for study and reference. J. H. K.

Of Men and Mountains. By WILLIAM O. DOUGLAS. 8½×5½. Pp. xiv+338. End-paper sketch map. London : Victor Gollancz Ltd, 1951. 18*s*.

As a boy, Judge Douglas suffered from infantile paralysis, which left him weak and puny. One day it occurred to him that by steady walking in the hills round his home in Yakima he might regain his strength. The extent of his wanderings grew with his strength until at last he was able to undertake arduous expeditions with his friends in the higher mountains of the Cascades of Washington and Wallowas of Oregon. He has retained his love of the mountains and to that has added knowledge of their flora and fauna. His book describes his adventures, culminating with the ascent of Mount Adams (12,307 ft) and also describes the shepherds, trappers and other inhabitants of these sparsely populated regions. His love of mountains runs through all the chapters.

There is a rough sketch map. A good map, however, and a few illustrations would add greatly to the pleasure of anyone reading the book. A. H.

Regionalism in America. By MERRILL JENSEN. Foreword by Felix Frankfurter. 9¼×6. Pp. xvi+425. Madison, Wisconsin : The University of Wisconsin Press, 1951. $6.50.

This volume comprises a series of papers read at a symposium on American regionalism held in 1949 in celebration of the centenary of the University of Wisconsin.

Two contributions on the historical development of regional consciousness in North America are followed by discussions of such historic regions of the United States as the South, and the Pacific Northwest. A third series of papers treats of regionalism in American dialects and literature, painting and architecture. Several studies are devoted to such economic regions as the Great Plains and the Tennessee Valley Authority area. The symposium concluded with the differing viewpoints put forward by Professor Odum on the " Promise," and by Professor Wirth on the " Limitations," of regionalism. These latter contributions are of particular interest to the geographer. Many of the other papers, however, provide a valuable insight into the way in which students in kindred disciplines approach spatial distributions. B. F.

The Hudson. By Carl Carmer. 8½×5½. Pp. xii+434. Illustrated by Stow Wengeroth. [Rivers of America.] Edinburgh, Glasgow, and London : William Hodge and Co. Ltd, 1951. 12*s* 6*d*.

It is so easy to think of the Hudson valley as merely a northward extension of New York's West River that we in this country tend to overlook the fact that it also possesses physical grandeur and beauty, and a long tradition of great events and colourful characters. Mr Carmer's delightful book deals with the story of the Hudson and its peoples, from the earliest days of white settlement to the present day, told with great wealth of anecdote. The book is at its best, however, when the author tells of the Hudson River steamers and their rivalries in speed, beauty, and luxurious comfort—rivalries much akin to those of the great days of the Clyde steamers, when standards of efficiency were set which have not been equalled in fifty years. Apart from an unhappy geological introduction, this is a book to be enjoyed, always entertaining, but displaying great knowledge and scholarly insight. A. M.

Magic Yucatan : A Journey to Remember. By Lilo Linke. 8½×5½. Pp. 160. 34 illustrations. London : Hutchinson and Co. (Publishers) Ltd, n.d. 12*s* 6*d*.

Despite the fact that this book opens in " the biggest mestizo dance " in Merida, Yucatan's capital, it proceeds to portray with real enthusiasm the colourful realities of life in this southernmost most isolated and backward state of Mexico. For the author modern Yucatan's social consciousness begins with the state's part in the socialist revolution of 1910. Miss Linke also believes that " schools are the cleverest mirror of a country's present conditions and future hopes " : her visits to schools in both city and jungle form a central theme.

The main points of interest of the book are her impressions of the heroic educational efforts of the poverty-stricken Henequen Workers' trade union in El Progreso, Merida's port ; the psychological problem faced by the Cultural Mission at Dzula in ' civilising ' the Maya Indians ; and the problems and progress of the National Commission for Irrigation at Tecax. The excellent half-tones might have been supplemented by an end-map. A. G. M.

The Wilderness Voyage. By Peter Grieve. 8×5¼. Pp. 216. Map. London : Jonathan Cape Ltd, 1952. 15*s*.

The author, a journalist of distinction, died in Delhi in 1950. In this book is described part of his journey to Buenos Aires, namely up the Rio Amazonas from Belém to Manáus, thence up the Rio Madeira to Porto Velho, and by rail and steamer up the Rio Mamore to Trinidad in eastern Bolivia. The final chapters deal, very briefly, with the journey by air to Santa Cruz de la Sierra, Cochabamba, and south to Argentina. The author was a master of his craft, conveying the ' atmosphere ' of the great rivers and their backwaters, and portraying, not without humour, the people he encountered. R. B. S.

POLAR REGIONS

The Northern Sea Route : Soviet Exploitation of the North East Passage. By Terence Armstrong. 9½×6½. Pp. xiii+162. 6 illustrations. 9 maps. [Scott Polar Research Institute, Special Publication, No. 1.] Cambridge : University Press, 1952. 21*s*.

The first of the *Special Publications* of the Scott Polar Research Institute gives an account of a subject of which little is known in western Europe. That is, perhaps, because the source of material is mainly Russian and so largely inaccessible. The search for a North East Passage began at least in the sixteenth century and was continued until the *Vega* accomplished it in 1878-79. But it did not attract any shipping, since its difficulties and dangers were great ; the Arctic coast of Siberia was poorly charted and the seas to its north little known until this century. And it was not until the Soviet régime was established that the Arctic sea route was adequately explored and utilised.

This book brings that knowledge up to date. It is exhaustively informative, with maps, bibliography, and statistics : a most creditable and scholarly compilation.

R. N. R. B.

Antarctic Isle : Wild Life in South Georgia. By NIALL RANKIN, F.Z.S., F.R.P.S., F.R.G.S. $8\frac{1}{2}\times5\frac{3}{4}$. Pp. 383. 12 figs. 137 photographs. End-paper maps. London : William Collins, Sons and Co. Ltd, 1951. 25*s*.

The author of this book spent a summer in South Georgia, studying bird, seal and whale life. Much of this has been done before, if not in the same locality, but the monographs on the King Penguin and the Wandering Albatross are welcome additions to the natural history of the South Atlantic. There is also a vivid chapter on whaling. No other book is so thorough and detailed, or written with greater charm or intimacy.

The volumes of the *Scotia* Results on the birds and seals of the South Orkneys, Gough Island, the Weddell Sea and the South Atlantic might well be added to the bibliography. Apart from the text, the book is noticeable for its wide range of superb photographs. We doubt if any other Antarctic book has contained such beautiful illustrations of bird and seal life. The maps also are excellent.

R. N. R. B.

BIOGEOGRAPHY

Birds and Men : The Bird Life of British Towns, Villages, and Farmland. By E. M. NICHOLSON. $8\frac{1}{2}\times5\frac{3}{4}$. Pp. xvi+256. 42 colour photographs, by Eric Hosking and others. 41 black-and-white photographs. [The New Naturalist, 17.] London : William Collins, Sons and Co. Ltd, 1951. 21*s*.

Mr Nicholson, the present Chairman of the British Trust for Ornithology, is well qualified to write on the subject of the relationship between man and birds. In nine chapters, he describes habits and life-histories of birds of town and farm lands, garden, orchard, and hedgerow, and he writes in a pleasant, readable style. This is a book which should find its way into the book-case of all bird-lovers. As usual in this series, the colour photographs are of additional interest. G. W.

GENERAL

Land for Tomorrow : The Underdeveloped World. By L. DUDLEY STAMP. $8\times5\frac{1}{2}$. Pp. 230. 31 figs. Bloomington : Indiana University Press. New York : American Geographical Society, 1952. $4.00.

The volume is based on lectures given recently by Professor Stamp at the University of Indiana and deals with a contemporary problem affecting us all, that of adequately nourishing the world's rapidly growing population. Compared with much of the literature on this subject, the striking features of this book are its essentially balanced outlook and its clarity of thought and expression. A middle course is steered between the Neo-Malthusians and the Pseudo-Scientific Optimists as each major region of the world is briefly summarised as to its potential and actual natural resources and success and failure in exploiting them. Among other things Professor Stamp is not beguiled by the myth of the fabulous potential of the tropics, pinning his faith more on increasing that of the temperate zone, nor is there any easy short cut. A very readable book, with all the essential facts and an adequate bibliography, it forms an excellent starting point for anyone wishing to approach this vast and critical problem. H. P. W.

Soil and Civilization. By EDWARD HYAMS. $8\frac{1}{2}\times5\frac{1}{2}$. Pp. 312. 4 plates. 5 sketch maps. [The Past in the Present.] London and New York : Thames and Hudson Ltd, 1952. 21*s*.

The author, fervently convinced of the importance of soil in human development, has written a book in which, as he remarks in the preface, he " may have given the impression of believing the nature and state of soil to have been the only influence in shaping the character of the community living on it ; and that character to have been the only influence on the health of the soil." Were all authors so frank in their self-criticism the work of reviewers would be greatly lightened. Mr Hyams has collected much archaeological and historical information to illustrate his point, but, despite his attempt to isolate one line of development, leaves one reader with the impression of having been led on a somewhat desultory ramble through history.

C. J. R.

Geography of Hunger. By J. De Castro. Foreword by Lord Boyd Orr. 8½×5½. Pp. 288. London : Victor Gollancz Ltd, 1952. 18*s*.

The author argues that the hunger endured by a great part of the world's population is the cause, not the result, of overpopulation. Abundance of food, he considers, would for physiological reasons slacken population growth. Having demoted the Malthusian devil to the status of scarecrow, De Castro raises colonialism and monoculture to major diabolical rank. This is one more book in which a single aspect of the overpopulation complex is brought into sharp focus while the rest is blurred. The vicious spiral of societies on the downgrade, with chronic misery corroding initiative, is common ground. Vogt's trumpet-call for intervention at one point is answered by De Castro's counterblast for intervention at another, but it is the same story.

The author gives interesting facts on the change in character of food supplies with social evolution and on medical geography. The section on Latin America is perhaps the best, that on Europe the weakest. The work is disfigured by exaggerations and their obverse—understatements, or complete omissions of equally important facts—while in places there is confusion of past with present and of potential with actual. C. J. R.

Victoria's Subjects Travelled. Being an Anthology from the Works of Explorers and Travellers between the Years 1850-1900. Edited, with an introduction, by Herbert Van Thal, f.r.g.s. 8½×5½. Pp. 384. 32 illustrations. London : Arthur Barker Ltd, 1951. 25*s*.

This anthology of travel is welcome. The editor has included in his entertaining and important selection many—perhaps too many—famous names, but the most interesting are probably those little known to fame, including a surprising number of women whose work deserves recognition. Amongst the most interesting parts of the book are the short summaries of authors' lives preceding each selection.

The index is tiresomely incomplete, and one or two misprints should be rectified in the text. Lord Dufferin's classic *Letters from High Latitudes* is mistitled thrice as *Altitudes*. On page 274, Central Africa should read " Arabia." I. W. H.

Treasure-Trove, Pirates' Gold. By Gordon Cooper. 8½×5½. Pp. 188. 23 illustrations. Decorative end-paper map. London : Lutterworth Press, 1951. 15*s*.

Many readers will enjoy this collection of old yarns and travellers' tales. One moves from China to Peru, passing through Central Asia, India, Persia, Egypt and many other regions in Africa, Tobermory, the American coast, West Indies and tropic isles. The second half of the title is not to be taken in too narrow a sense, for the book includes robbers and plunderers of all ages by land and sea, lost ships and buried treasure. The author expresses suitable reprobation of the ferocious ruffians he describes, but he obviously admires them for their courage and adventurous spirit. The chief moral of the book would seem to be that the scriptural injunction rarely applies to treasure-hunting, for few of those that seek ever find. R. T. C.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

PROCEEDINGS

Meetings of Council were held on the 16th October and 2nd December 1952.

Awards : The Diploma of Fellowship was awarded to John Black, John M. Mathieson, M.A., and James M. Wordie, C.B.E.

ANNUAL GENERAL MEETING

The Annual General Meeting was held in the Society's Rooms in Edinburgh, 7th October 1952, the President in the Chair.

The Annual Report of the Council and the Financial Statement were unanimously adopted : the record membership, standing at 2323, being warmly noted and especially the increase in membership at the Glasgow Centre.

The excellent work and expert guidance of the retiring Honorary Treasurer, Mr D. Alan Stevenson, was noted with acclamation.

The following members of the Society were unanimously elected to be:—

(*a*) Vice-Presidents serving on Council :—Douglas Guthrie ; Alexander Harrison ; John Johnston ; Alan G. Ogilvie ; Archibald E. Robertson ; J. Cameron Smail.

(*b*) Members of Council :—Mrs Katherine Addison-Smith; H. M. Cadell; Miss Elizabeth F. Comrie ; G. Dalyell of the Binns ; Alexander Douglas ; Horace Fairhurst (*Glasgow*) ; Ian Grant ; James G. Harley ; Mrs Eleanor A. Harper Gow ; Robert M. Gall Inglis ; Robert Kerr ; Sir Hugh McPherson ; Sidney Newman ; Charles J. Robertson ; George Waterston.

(*c*) Chairman of Centres :—*Glasgow :* John A. Ferguson ; *Dundee :* John Watson ; *Aberdeen :* Andrew C. O'Dell.

The other Office-bearers were re-appointed.

LECTURE SESSION, 1952-1953

JANUARY-MARCH, 1953

EDINBURGH, *Usher Hall*

EVENING MEETINGS—Thursdays, at 7.30 P.M.

January	15th.	Sir CLARMONT SKRINE, O.B.E., on " From the Indus to the Euphrates ".
February	12th.	S. J. K. BAKER, M.A., on " Bunyoro—A District in the Western Province of Uganda ".
March	12th.	Count EIGIL KNUTH, on " The Danish Expeditions to Pearyland ".

Central Hall, Tollcross

AFTERNOON MEETINGS—Wednesdays, at 3 P.M.

January	21st.	TOM WEIR, on " Scottish Mountaineering ".
February	4th.	PETER LOVIE, M.A., S.T.M., on " Bermuda ".
February	18th.	C. H. GIMINGHAM, B.A., PH.D., on " North African Plant Life ".
March	4th.	WILLIAM LIVINGSTON, A.M.I.C.E., A.R.I.C.S., F.I.H.E., on " British Guiana ".
March	18th.	H. SKELTON, on " Poland ".

The Society's Rooms, Synod Hall

NEW DEVELOPMENTS IN GEOGRAPHY—Thursdays, at 5.15 P.M.

January	8th.	P. M. SCOLA, M.SC., B.ECON., on " Types of Farming in Scotland ".
February	5th.	ROBERT KEDDIE, M.I.M.E., M.I.P., on " Scottish Oil Industry at Grangemouth ".
March	5th.	E. R. L. FITZPAYNE, B.SC., M.INST.T., and C. J. H. SELFE, GRAD.INST.T., on " Post-War Trends in Scottish Transport ".

JUNIOR MEMBERS' MEETING—at 7.30 P.M.

March	17th.	D. G. MOIR, on " Hiking in Austria ".

GLASGOW, *Lyric Theatre*, at 7.30 P.M.

January	14th.	Sir CLARMONT SKRINE, O.B.E., on " From the Indus to the Euphrates ".
February	11th.	S. J. K. BAKER, M.A., on " Bunyoro—A District in the Western Province of Uganda ".
March	11th.	Count EIGIL KNUTH, on " The Danish Expeditions to Pearyland ".

GLASGOW, *Grosvenor Restaurant*, at 12.30 P.M.

March 21st. Lord BELHAVEN AND STENTON, F.R.G.S., F.R.C.A.S., on "The Unknown Territory".

ABERDEEN, *Y.M.C.A. Hall*, at 7.45 P.M.

January 20th. W. B. FISHER, D. de l'Univ. (Paris), on "Modern Turkey".
February 10th. S. J. K. BAKER, M.A., on "Bunyoro—A District in the Western Province of Uganda".
March 10th. Count EIGIL KNUTH on "The Danish Expeditions to Pearyland".

DUNDEE, *Training College Hall, Park Place*, at 7.30 P.M.

January 14th. J. CAMERON SMAIL, O.B.E., LL.D., F.R.S.E., F.R.S.G.S., on "The Prairie Provinces of Canada".
February 13th. S. J. K. BAKER, M.A., on "Bunyoro—A District in the Western Province of Uganda".
March 13th. Count EIGIL KNUTH, on "The Danish Expeditions to Pearyland".

OBITUARY

It is with regret that the Society records the death of the Rev. John William Arthur, O.B.E., D.D., M.D., Member of Council 1949-52, and of Dr Sven Anders Hedin, Hon. Member of the Society and recipient of the special Silver Medal (1897), Livingstone Gold Medal (1902), and the Society's Gold Medal (1908).

BRUCE MEMORIAL PRIZE

The Prize for 1952 has been awarded to G. DE Q. ROBIN, M.SC.(MELB.), for his initiative and resource in carrying out glaciological and biological researches in the Antarctic while with the Falkland Islands Dependencies Survey (1946-47), and with the Norwegian-British-Swedish Expedition (1950-51).

Previous awards:—

1926 JAMES MANN WORDIE
1928 H. U. SVERDRUP
1930 N. A. MACKINTOSH
1932 HENRY GINO WATKINS
1936 J. W. S. MARR
1938 ALEXANDER R. GLEN
1940 BRIAN ROBERTS
1942 G. C. L. BERTRAM
1944 T. H. MANNING
1946 P. D. BAIRD
1948 W. A. DEER
1950 M. J. DUNBAR.

NEWBIGIN PRIZE: 1953 AWARD

A Bronze Medal and Money Prize will be awarded for the best Essay, suitable for publication in *The Scottish Geographical Magazine* and not exceeding 7000 words in length, on any subject relating to the geography of Scotland.

Essays, typed and with any illustrations prepared for reproduction, in envelopes marked "Newbigin Prize," must be lodged with the Secretary, Royal Scottish Geographical Society, Synod Hall, Edinburgh 1, on or before 31st October 1953.

ERRATA

Vol. 68, No. 2, p. 72. The depth contour at 61° 45′ N, 9° 40′ W, marked 5 0, is 500.

Ibid., p. 82, line 23. For Rouken Glen, read Victoria Park.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

REPORT OF COUNCIL

SIXTY-EIGHTH SESSION, 1951-52

(For the year 1st May 1951 to 30th April 1952)

The Council have the honour to submit the following Report :

MEMBERSHIP

The changes during the Session are as follows :—

On the Roll at 1st May 1951		1985
New Members		635
		2620
Deduct by Death	26	
„ Resignation	271	
		297
On the Roll at 30th April 1952		2323

The fluctuation in the different categories of Membership at the four Centres of the Society is analysed thus :—

	30/4/51	30/4/52		30/4/51	30/4/52
Edinburgh.			*Glasgow.*		
Life	259	280	Life	23	25
Ordinary	799	1018	Ordinary	267	362
Associate	97	61	Associate	5	5
Junior	114	142	Corporate (Schools)	26	29
Corporate (Schools)	14	18			
Aberdeen.			*Dundee.*		
Life	6	7	Life	5	6
Ordinary	157	172	Ordinary	53	54
Associate	1	1			
Outside Area Members	133	115	*Honorary Members*	26	25

MEDAL AWARDS

The Livingstone Medal was awarded to Eric E. Shipton for Himalayan Exploration 1931-51.

The Mungo Park Medal was awarded to W. H. Murray for his work in the Scottish Himalayan Expedition 1950 and the Everest Reconnaissance Expedition 1951.

The Scottish Universities Medals were awarded to :—Patricia Ann MacGilchrist, St Andrews University ; Nora A. McIntosh, Glasgow University ; John Richard Masson, Aberdeen University ; and John Bewsey, Edinburgh University.

Meetings of the Society

The Society held forty-eight Meetings during the Session. In Edinburgh : seven Lectures in the Usher Hall ; ten Wednesday Afternoon Lectures in the Central Hall, Tollcross ; six Geographical Papers in the Society's Rooms, and five special Talks for the Junior Membership ; two Film Shows for Young People in the Synod Hall.

Six Lectures were held in the Lyric Theatre, Glasgow ; six in the Training College, Park Place, Dundee ; and six in the Y.M.C.A. Hall, Aberdeen. Lectures are currently listed in the *S.G.M.*

Library and Map Department

The following additions were made :—261 books ; 16 reports and 32 pamphlets ; 28 books were presented and 26 purchased. The free issues of G.S.G.S. publications have continued to enrich the Society's map collection.

During the Session 3928 books and 532 lantern slides were issued to members.

The Council thank those who have supported the Society with the presentation of books, maps, charts, lantern slides and films.

The Scottish Geographical Magazine

Three numbers of the *Magazine* were issued during the year. The number of pages of the text was increased to 208. The second number was published in August, instead of September, to coincide with the meeting of the British Association. The distribution of 200 copies to members of Section E was appreciated.

There has been a gratifying increase in the number of subscribers overseas, more especially in the United States of America.

The Council desire to acknowledge their obligations to the contributors of original papers and reviews of books, and appreciate the receipt of an increasing number of current geographical publications from authors and publishers. Grateful acknowledgment is due to the Carnegie Trust for a grant of £100 towards cost of production of the *Magazine.*

Donations

During the year to 30th April 1952 Donations to the General Funds of the Society, amounting to £252, 18s. 2d., were received, viz. :—under Covenant—Dr James Watt's Trustees £100 and Anonymous £40, 18s. 2d., these payments completing the sums due under existing Covenants ; £12 as an anonymous donation, and a Legacy of £100 bequeathed by the late Miss C. E. Dowell.

A final payment of £115, 0s. 4d. was also received in respect of the Bequest from the Estate of the late Mr Ralph Richardson—the amount of this Fund now standing at £27,738, 11s. 7d.

The Society's Representatives

The following Members were appointed to represent the Society :—

Bruce Memorial Prize Committee.—James M. Wordie ; Prof. R. N. Rudmose Brown.
Joint Committee for Anthropological Research and Training.—Robert Kerr.
National Committee for Geography.—Professor Alan G. Ogilvie.
National Trust for Scotland.—Professor Alan G. Ogilvie.
Permanent Committee on Geographical Names.—John C. Bartholomew.
Scottish National Memorial to David Livingstone.—Lt.-Col. John Johnston.
National Institute of Oceanography.—Professor Alan G. Ogilvie.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

ORDINARY REVENUE AND EXPENDITURE ACCOUNT

For Year to 30th April 1952

REVENUE

SUBSCRIPTIONS :—			
Ordinary		£2,285 5 7	
Schools Corporate		194 5 0	
Junior Members		71 0 0	
		£2,550 10 7	
LIFE MEMBERSHIP FEES :—			
Portion applicable to Revenue		118 4 1	
GOVERNMENT GRANT		200 0 0	
GENERAL DONATIONS		152 18 2	
		£3,021 12 10	
DIVIDENDS AND INTERESTS	£1,066 16 0		
Less—Provision for Amortisation	50 0 0		
		1,016 16 0	
		£4,038 8 10	

EXPENDITURE

MAGAZINE—Expenses of Publications :—			
Printing			£846 5 6
Editor			160 0 0
Illustrations			192 5 10
Wrappers, Index and Miscellaneous			47 15 0
Postages			80 14 9
			£1,327 1 1
Less—Current Magazines sold	£225 4 7		
Advertisements	93 16 0		
Grant from Carnegie Trust towards expenses of publishing Magazine for 1951-52	100 0 0		
		419 0 7	
		£908 0 6	
ROOMS—Upkeep of :—			
Rent, Rates and Insurance	£213 4 6		
Cleaning and Repairs	72 5 0		
Heating and Lighting	69 0 4		
	£354 9 10		
Less—Donations	92 0 0		
		262 9 10	
LECTURES	£1,165 16 6		
Less—Received for Tickets sold	556 6 10		
		609 9 8	
SALARIES			1,152 0 0
AUDITOR'S FEE			15 15 0
LIBRARY—Books, Maps and Furnishings			217 10 4
GENERAL PRINTING			110 7 6
STATIONERY			180 11 6
TELEPHONE AND TELEGRAPHIC ADDRESS			23 19 2
ADDRESSOGRAPH			94 14 3
MEDALS			26 11 10
POSTAGES			109 7 4
MISCELLANEOUS			350 0 9
		£4,060 17 8	
Less Deficit for Year		22 8 10	
		£4,038 8 10	

BALANCE SHEET as at 30th April 1952

ASSETS

I. INVESTMENTS :—		
£4,000 British Transport 3% Guaranteed Stock 1978-88		£3,783 2 0
£3,000 British Electricity 3% Guaranteed Stock 1968-73		2,944 7 0
£5,000 3% Savings Bonds 1955-65		5,166 8 6
£4,106, 3s. 3d. do. 1965-75		4,173 17 4
£5,500 3½% Conversion Stock 1961		5,772 13 6
£890 2¾% Guaranteed Land Stock		500 13 6
£2,113, 18s. 8d. British Gas 3% Guaranteed Stock 1990-95		2,119 12 4
£5,603, 10s. 11d. 3% Savings Bonds 1960-70		5,522 13 6
£2,435, 15s. 6d. 4% Consolidated Stock		2,552 1 5

LIABILITIES

I. ACCOUNTS OUTSTANDING			—
II. PREPAID SUBSCRIPTIONS			£9 4 4
III. RESERVES, etc.—			
Glasgow Equipment Fund—Balance at 30.4.51	£60 4 0		
Provision for Current and Deferred Expenditure, for Books, Maps, Atlases, Binding Equipment, Furnishings and Exhibitions as at 30.4.51	1,750 18 6		
	£1,811 2 6		
Add—Early Magazine Sales	311 16 0		
		2,122 18 6	
IV. FUNDS OF THE SOCIETY—			
(*a*) LIFE MEMBERSHIP FUND—			

	£32,111 1 9	
II. Sundry Debtors	105 0 0	
III. Cash in Bank and on Hand	3,149 7 7	
	£35,365 9 4	

		£2,364 1 7	
Less—Sum transferred to Revenue Account		118 4 1	
		£2,245 17 6	
(*b*) Dr. J. G. Bartholomew Fund		1,000 13 6	
(*c*) J. E. Touche Bequest—			
Balance at 30th April 1951		608 1 4	
(*d*) Ralph Richardson Bequest—			
Balance at 30th April 1951	£27,623 11 3		
Add—Final Instalment of Bequest	115 0 4		
		27,738 11 7	
(*e*) General Funds, including Bequests from T. F. Thompson, Dr. J. Currie, J. D. Munro, J. Bentley Philip, A. Geddes Scott, Miss Morrison, R. T. Skinner, Miss Julia Blanchard, Miss Ella Christie and Miss I. M. Hayward—			
Balance as at 30.4.51	£1,562 11 5		
Miss E. C. Dowell Bequest	100 0 0		
	£1,662 11 5		
Less—Deficit for Year	22 8 10		
		1,640 2 7	
			33,233 6 6
			£35,365 9 4

LIVINGSTONE MEDAL FUND

Funds as at 30th April 1951		£1,764 11 4	
Income Received—Interest on Stocks		49 14 8	
		£1,814 6 0	
Expenses *re* Medals			£7 14 7
Funds as at 30th April 1952—			
£1,390 3% Savings Bonds 1965-75	£1,390 0 0		
£123, 0s. 8d. do. 1965-75	125 8 0		
£150 2½% Defence Bonds	150 0 0		
£75 3% do. (Fifth Issue)	75 0 0		
		1,740 8 0	
Cash in Bank		66 3 5	
			£1,814 6 0

DR. M. I. NEWBIGIN MEMORIAL

Funds as at 30th April 1951		£461 6 4	
Income Received—Interest on Stocks		11 17 10	
		£473 4 2	
Funds as at 30th April 1952—			
£333, 18s. 6d. 3% Savings Bonds 1965-75	£339 6 6		
£75 2½% Defence Bonds	75 0 0		
		£414 6 6	
Cash in Bank		58 17 8	
			£473 4 2

Edinburgh, 2. 19th June, 1952.—I have examined the Accounts of the Royal Scottish Geographical Society for the year to 30th April 1952, of which the above is an Abstract, and compared them with the Vouchers and Instructions thereof, and I find the whole to be correctly stated and sufficiently vouched and instructed.

GORDON G. RUFFLE, C.A., *Auditor.*